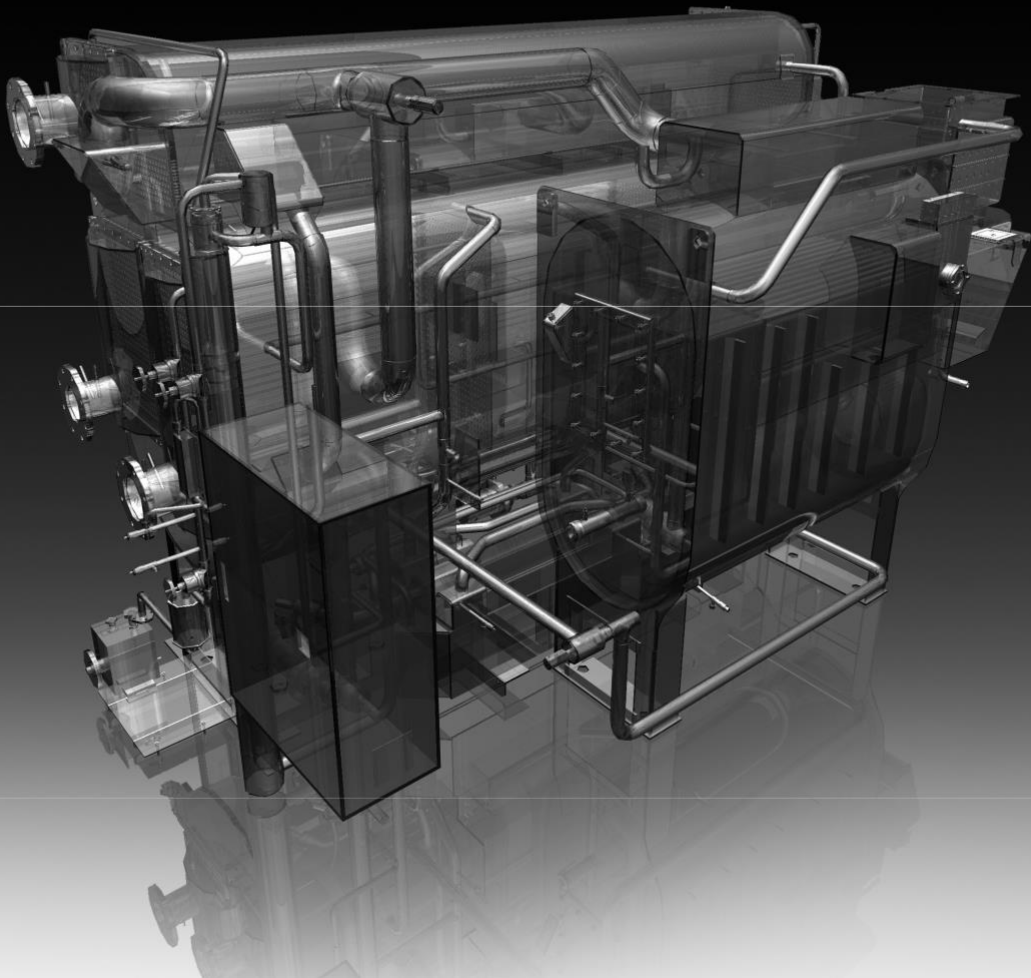
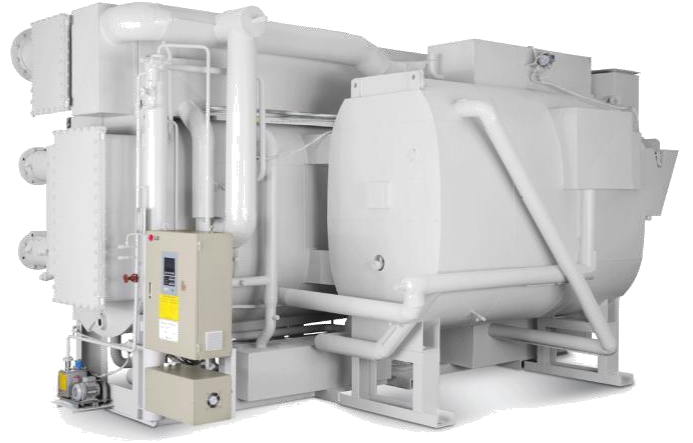
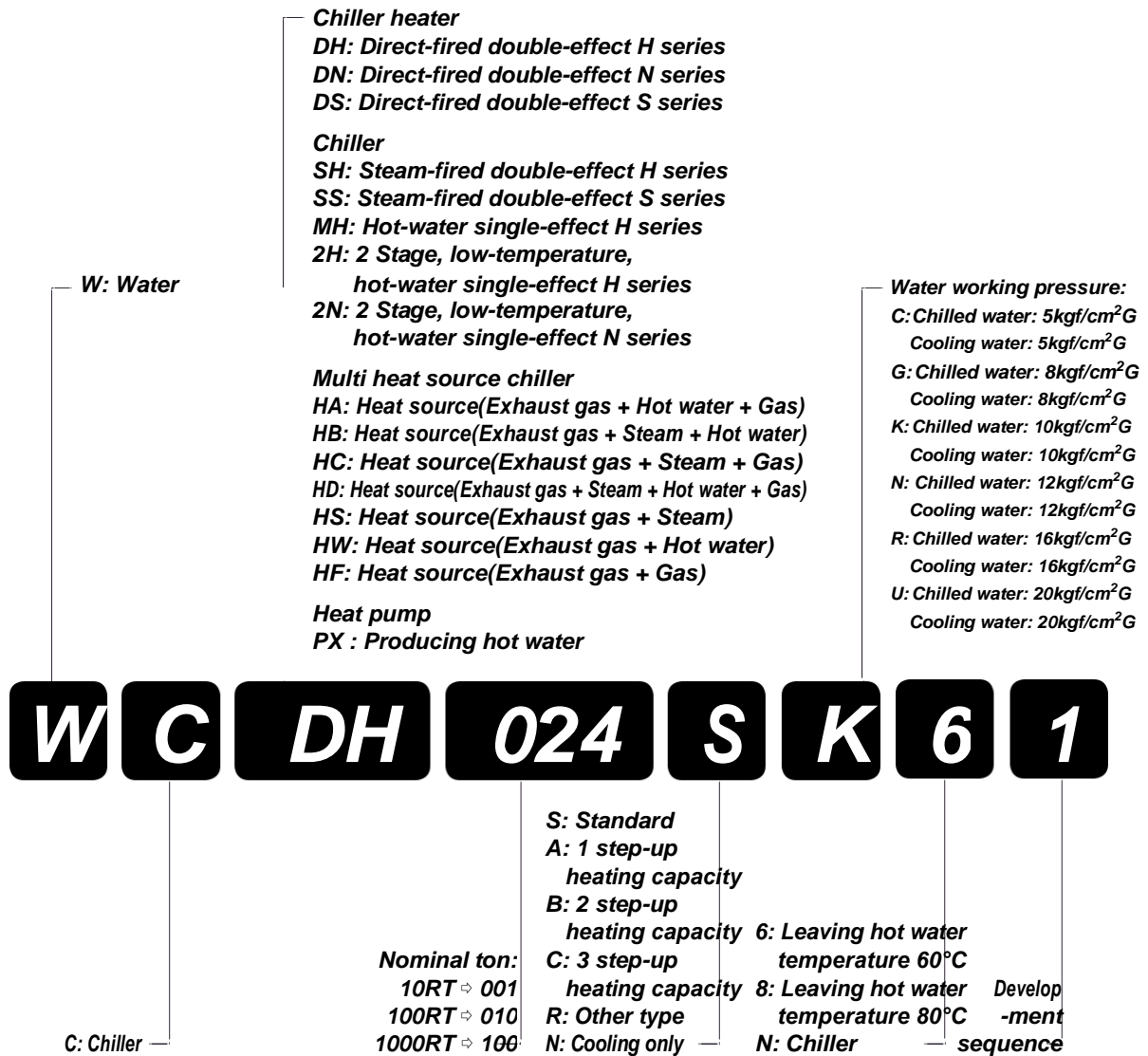




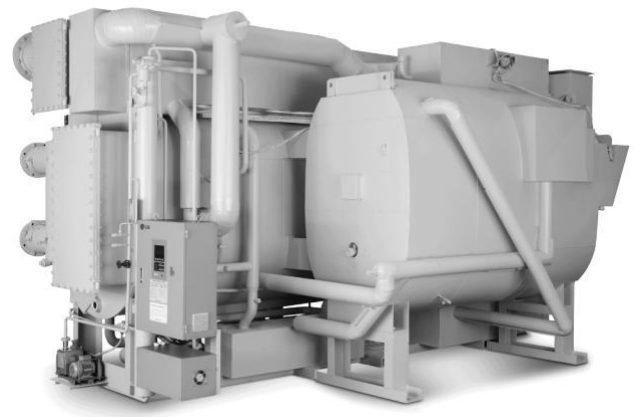
***LG HVAC SOLUTION***  
***ABSORPTION***  
***CHILLER***









## Contents

- 2 Nomenclature
- 3 Line up
- 4 Absorption chiller application
- 5 Equipment overview
- 9 Options check list
- 12 LG Absorption chiller tube material
- 10 Specification
- 56 Thermal insulation
- 58 Piping diagram
- 61 Standard of water quality
- 62 Fuel piping
- 63 Multi-Sectional shipment
- 65 Outline & Foundation
- 92 Schematic diagram
- 95 Interface diagram
- 97 Guide specification








## Line up


### Direct fired absorption chiller & heater

Model		0	100	500	1,000	1,500	3,000
	<b>WCDH (H Series)</b>		100RT			1,500RT	3,000RT
	<b>WCDN (N Series)</b>		50RT	700RT			3,000RT
	<b>WCDN(3) (N Series)</b>		50RT			1,500RT	3,000RT
	<b>WCDS(2) (S Series)</b>		100RT			1,500RT	3,000RT


### Absorption chiller

Model		0	100	500	1,000	1,500	2,000	3,000	4,000
	<b>WCSH Steam fired</b>		100RT			1,500RT			4,000RT
	<b>WCSS(2) Steam fired</b>		100RT			1,500RT			4,000RT
	<b>WCMH Hot water fired</b>		73RT		1,350RT		2,000RT		
	<b>WC2H Hot water fired</b>		28RT		1,020RT		2,000RT		
	<b>WC2N Hot water fired</b>		73RT		1,350RT		2,000RT		

### Hybrid absorption chiller

Model		0	100	500	1,000	1,500	2,000	3,000	4,000
	<b>WCHA</b>		100RT					3,000RT	

### Heat pump

Model		0	300	1,000	5,000	10,000	20,000	30,000
	<b>WCPX Heat pump</b>		349kW					30,218kW

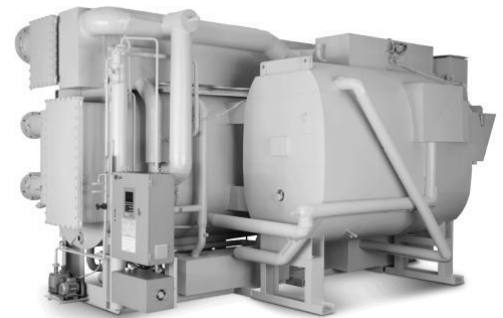
\* Available on request.

## Absorption chiller application

	Energy	Available	Model Selection			(Example) Application
			Efficiency	Model	Remark	
Chiller	Gas or Oil	LNG LPG Bio-Gas Exhaust gas Oil	COP 1.51	WCDH	World Class High Efficiency	Commercial area Multipurpose building Thermoelectric power plant
			COP 1.41	WCDN(3)	Enhanced Efficiency of the part load (Part load : 75~25%)	
			COP 1.34	WCDN	Enhanced Stability & Reliability	
			COP 1.12	WCDS	Steady Best Selling Model	
	Steam	Steam pressure 1~8kg/cm <sup>2</sup>	COP 1.50	WCSH	World Class High Efficiency	Commercial area Multipurpose building Petroleum and Chemical Factory
			Consumption (3.5 kg/hRT)		Steam Pressure : 4~8kg/cm <sup>2</sup>	
			COP 1.21	WCSS	Steady Best Selling Model	
			Consumption (4.4 kg/hRT)		Steam Pressure : 4~8kg/cm <sup>2</sup>	
	Hot Water	Inlet Temperature Standard 95°C	COP 0.68	WCSA / V	Enhanced Durability	Solar system District energy system Cogeneration
			Consumption (8.0 kg/hRT)		Steam Pressure : 1~1.5kg/cm <sup>2</sup>	
			COP 0.83	WCMH	World Class High Efficiency	
	Multiple Energy	Exhaust gas + Hot water + (LNG)	COP 0.74	WC2H	Low Temperature outlet Standard outlet Temp. : 55°C	Solar system District energy system Cogeneration
COP 0.67			WC2N	Low Temperature outlet Standard outlet Temp. : 55°C		
COP 1.2			WCHA	Hybrid Absorption Chiller Using more than 2 kinds of heat source		
Heat pump	Waste heating Source	Gas Steam Hot water	COP 1.65~1.80	WCPX	World Class High Efficiency Hot water Temp. : 55~90°C	Combined Heat and Power Incinerator system

With over 50% domestic market share, LG Electronics has provided heating, ventilating and air conditioning total solution to industrial and commercial fields over 40 years. Now the company, specialized in absorption, centrifugal & GHP, now wants to share its leading technology with the global friends.

The LG Absorption Chillers have always been nation's No.1 energy saving chillers, since the company has considered R&D as frontier mover of all.



### Features of LG absorption chillers

- Beneficial where cooling/heating demands are all year around by using diversified energy sources as Gas, Steam and Hot water.
- Reduces operation cost in where electrical costs are high.
- Utilizing environmental safe, non chlorine mixture based refrigerant.
- Reduces green house effect by less using hydrocarbon fuels as well as electricity.

### Stainless steel tube

#### Corrosion resistance

In general, tubes of absorption chiller are corroded by pollutant in the cooling water.

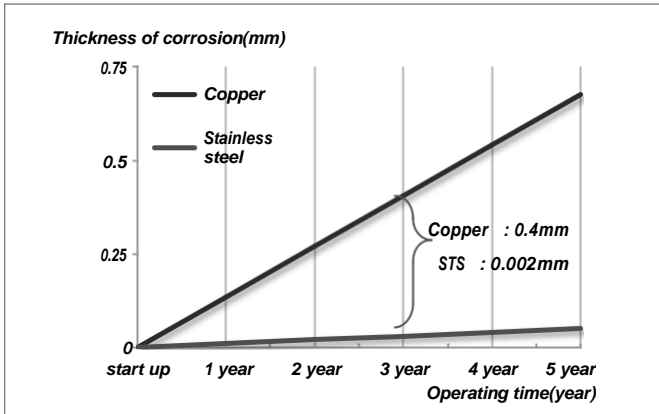
The type of corrosion is majority pitting corrosion. So many maker recommend triennial cleaning tubes.

LG has applied to stainless steel tube and enhanced reliability, maintenance of machine.

- Main characteristic of corrosion in tube: pitting corrosion  
If the pollutants is pasted at a tube surface, pollutants can be lead to pitting corrosion.
- Enhanced heat-transfer efficiency of stainless steel tube  
Generally, stainless steel tube has low heat transfer coefficient than copper.  
LG has achieved same performance comparing to copper by improving low heat transfer efficiency of stainless steel with our unique knowhow



- Strength and hardness of stainless steel tube is higher than that of copper tube.



	Copper	Stainless steel
Corrosion rate (mm/year)	2400% (0.1352700)	100% (0.0056209)
Loss by weight (mg/year)	1500% (-0.0196)	100% (-0.00013)

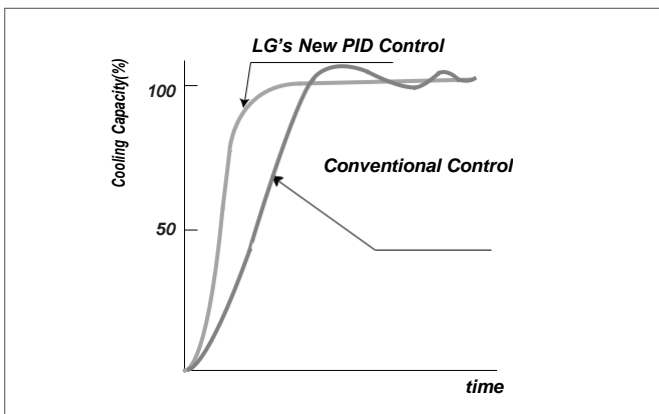
## Reinforced user interface design

Over 40 years experience with successful delivery of 10,000 units. LG Absorption chiller has been focused on user interface and reliable convenient operations that to considered as a first step of total HVAC solution.

## High efficiency & high energy saving operation

**Inverter controlled solution pump enabled high part-load efficiency with fast full-loaded operation**

Optimized flow rate of solution is decided upon cooling demand and that to enable highly efficient energy saving operation at all operation range.



## Reinforced safety operation function

LG's unique microprocessor keeps monitoring every part of

chiller so to prevent any damage could happen at abnormal operation. The machine can stop automatically by reinforced safety function when the chiller operation reached at abnormal state.

## Optimized dilution operation shortened stoppage time

LG's newly designed microprocessor decides when to equalize concentration of solution in every part of chiller by self diagnostic calculations. Also this led to saving dilution operation as well as energy saving at auxiliary equipments, such as water pumps by reducing idle time from 15 min to 5 min.

## High reliability & practical design

### High performance of purging system

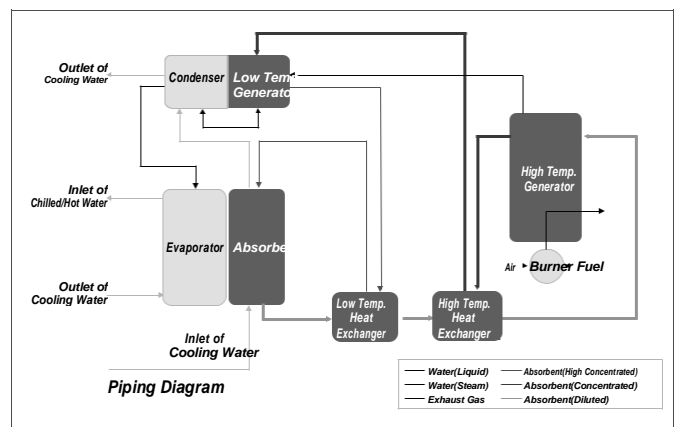
Newly designed injector typed, purging either at upper shell and lower shell, a new LG purging system, enabled less purging time and better purging performance.

### Marine hatch type water box

No need to cut or disassemble for tube cleaning or maintenance purposes, marine hatch typed water box allows an operator to clean tubes in less time.

## Series flow

- Easy control of absorbent circulation rate by load
- Reduce Facility installation cost by reduce cooling water flow
- Enable absorbent circulation rate control and Pump Soft Start/Stop by inverter pump
- Easy operation
- No damage by local heating

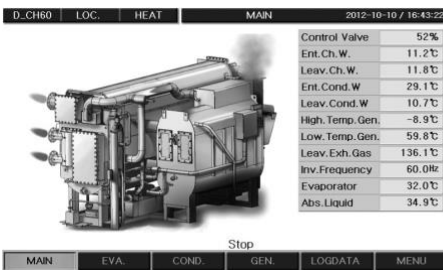
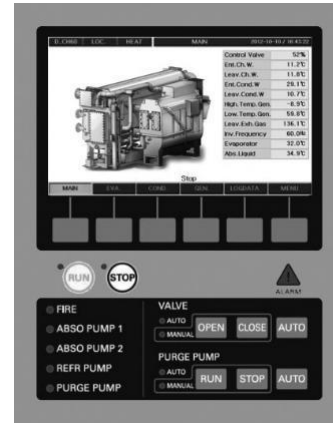


## High performance controller

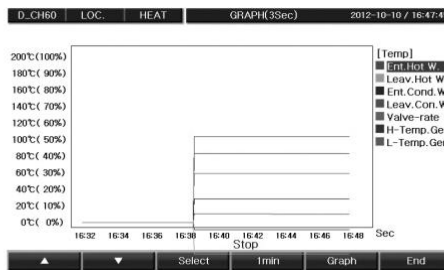
*Delicate Designed with PID Control Logic, a new Micro Processor enables LG Chiller be always at optimum operation state*

## A new quick response PID control logic

*A quick response, new LG designed PID algorithm enabled high sensitive combustion control rate that to meet minimized reaching time of demand temperature. It also reduced the fluctuating temperature difference so that to enable constant temperature control logic.*



**7" Color LCD with high resolution**



**Real time operation status**

SCHEDULE RUN SET	1	2	3	4	5
1 RUN 03:00 STOP 03:00					
2 Temp 7.0°C					
3 RUN 03:00 STOP 06:00					
4 Temp 7.0°C					
5 RUN 06:00 STOP 09:00					
6 Temp 7.0°C					
7 RUN 09:00 STOP 12:00					
8 Temp 7.0°C					
9 RUN 12:00 STOP 15:00					
10 Temp 7.0°C					
11 RUN 15:00 STOP 18:00					
12 Temp 7.0°C					
13 RUN 18:00 STOP 21:00					
14 Temp 7.0°C					
15 RUN 21:00 STOP 23:00					
16 Temp 7.0°C					

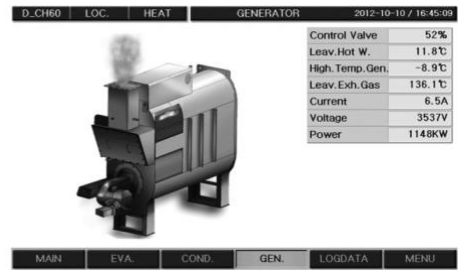
**Time schedule**



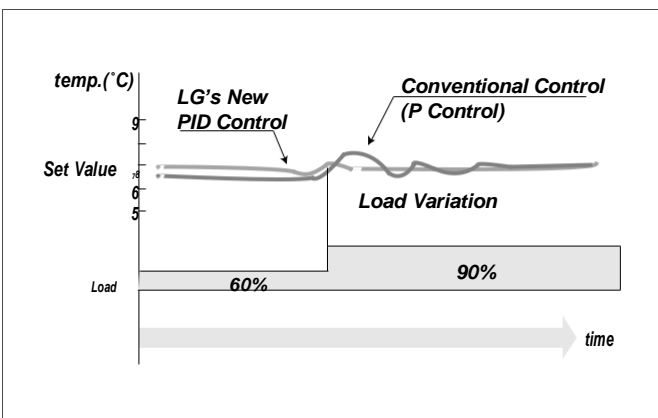
**Evaporator & absorber**



**Low temperature generator**



**High temperature generator**



**A new Quick Response PID Control Logic**

## Self diagnostic safety operation

### 1. Anti-crystallization safety operation

*A solution concentration is monitored at micro processor in*

*all operational condition and keeps concentration level in optimum state by controlling a combustion rate.*

*2. A safety operation feature against cooling water temperature For stable operation, entering cooling water can be reset based on remote temperature range of 19~34°C as well as responding its temperature at the micro processor by controlling combustion rate.*

- 3. Operation data storage/maintenance feature**
- 20 years normal operation history data record
  - 300 abnormal message history data record
  - 10.6 day temperature sensing data record

*Based on all stored data, more accurate operational maintenance is capable.*

### 4. Self Diagnostics / Mal function Alarm feature

*If any disturbing factor predicted while normal operation, a chiller tests itself and determines whether it has to turn into*

safe mode operation or to stop.

- **Maintenance purpose**

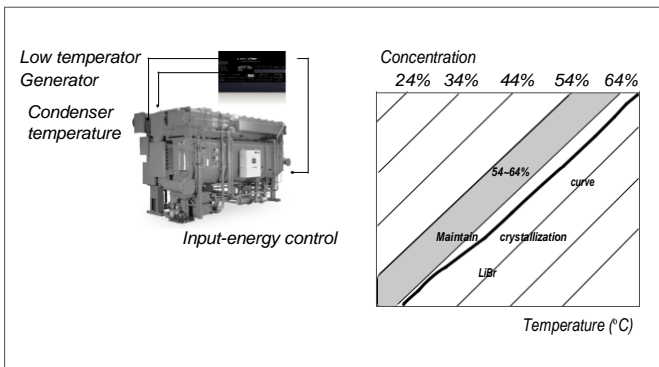
**Chamber Cleaning:** by monitoring exhaust gas temperature, operators can predict right time of cleaning a combustion channel of HTG. (Option)

- **Malfunction alarm feature**

Monitoring all sensors, of their conditions like temperatures and pressure state so that if any abnormal sign occurs it shows abnormal reason on the display for easy operation.

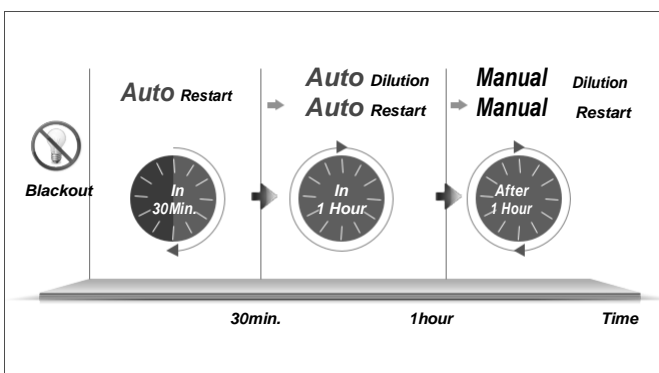
### Absorbent concentration control

Controller calculates Absorbent Concentration by Condenser and Low Temp. Generator, Controls Inlet Heat for Preventing Absorbent Crystallization.



### Process during Power failure

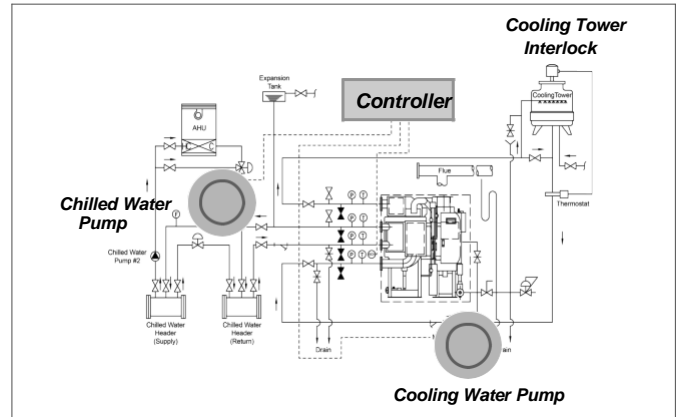
Auto Self Diagnosis and Restart by Blackout Response Function.



### Maximize System Stability by Self Diagnosis

- **Equipment Facility, Self Diagnosis**

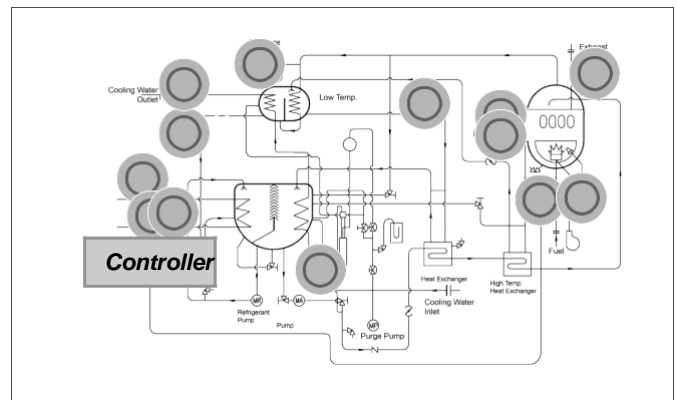
Equipment Facility from Controller when Start-up (Chilled water / Cooling water pump, Cooling tower) with Self diagnosis, Customer can prevent from Crystallization and Frozen burst.



**Equip. Facility Diagram**

- **Safety Device, Self Diagnosis**

Safety device and Sensor status with Self-diagnosis from Controller when Start-up. Customer can prevent from abnormal operation and safety accident.



**Piping Diagram**

### Enhanced user interface designed micro processor

- **Operation State Display**

Operation state is displayed either in text or as graph so to enable better understanding

- **Printer (Option)**

Stored operation normal/abnormal/ alarm history data can be printed out from mounted printer

- **Flow Rate Indication (Option)**

A flow rate of chilled/ cooling water flow rate can be indicated on the display. For this operation an additional transducer should be applied on chilled/cooling water pipe line.

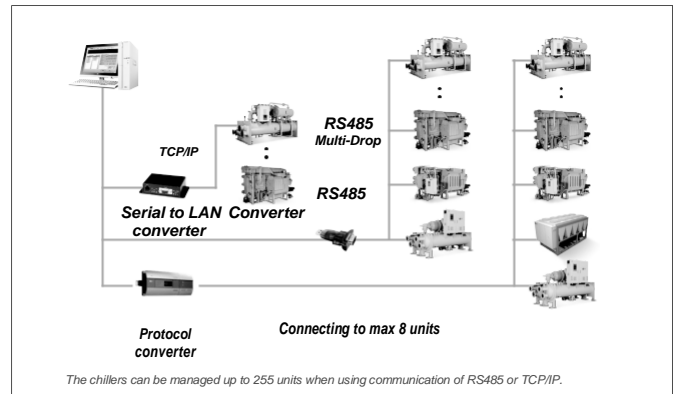
- **Annex System Control**

Pumps and cooling fan are in control with micro processor for automated operation

- **Schedule Operation**

Schedule operation can be done in days or at the desired any time

<b>Status Display</b> (LED display)	<ul style="list-style-type: none"> <li>· Voltage · Cooling</li> <li>· Run · Heating</li> <li>· Stop</li> </ul>	<b>Setting Value</b>	<ul style="list-style-type: none"> <li>· CHW/HW inlet temp.</li> <li>· CHW/HW outlet temp.</li> <li>· CW temp.</li> <li>· P value</li> <li>· I value</li> <li>· D value</li> </ul>
<b>Reading Value</b> (LCD display)	<ul style="list-style-type: none"> <li>· CHW/HW Inlet Temp.</li> <li>· CHW/HW Outlet Temp.</li> <li>· CW Inlet Temp.</li> <li>· H.gen Temp.</li> <li>· L.gen Temp.</li> <li>· Condensing Temp.</li> <li>· Remote Set Temp.</li> <li>· Control V/V Open(%)</li> <li>· Libr Concentration</li> <li>· Inverter(Hz)</li> <li>· PID Value</li> </ul>	<b>Reading Value</b> (LCD display)	<ul style="list-style-type: none"> <li>· Combustion signal</li> <li>· Purge chamber pressure</li> <li>· H. Gen level low</li> <li>· Run mode</li> <li>· Control v/v mode</li> <li>· Abs pump #1 th. Relay</li> <li>· Abs pump #2 th. Relay</li> <li>· Chw/hw pump interlock</li> <li>· Cw pump interlock</li> <li>· H. Gen pressure</li> <li>· Chw flow rate</li> <li>· Cw flow rate</li> <li>· Abs pump #1 m. Contactor</li> <li>· Abs pump #2 m. Contactor</li> <li>· Purge pump m. Contactor</li> </ul>
<b>Operation Time</b> (LCD display)	<ul style="list-style-type: none"> <li>· Running time</li> <li>· Combustion time</li> <li>· Ref. Pump run time</li> <li>· Abs pump #1 run time</li> <li>· Abs pump #2 run time</li> </ul>		
<b>No. Of Run/stop</b> (LCD display)	<ul style="list-style-type: none"> <li>· Running time</li> <li>· Combustion time</li> <li>· Ref. Pump run time</li> <li>· Abs pump #1 run time</li> <li>· Abs pump #2 run time</li> </ul>		



**Detailed diagrams of BMS**

## Group unit system control

### For intelligent buildings and huge factories

#### 1. Communication protocol for Building Automation and Remote monitoring control

- Easily accessible to user's interface
- RS485 communication processor installed
  - MODBUS is standard, BACnet, Lonwork are available as an option.
- Operational data acquisition
- Graphical display of monitoring & control status
- Data editing and Report generation with MS EXCEL
- Real-time graphical display of trend data
- Various graphic display for analog data
- Password protected

#### 2. Optimized Operation

- Integrated System Management
  - Integrated control of Chillers and Peripheral Equipment which are connected to LG controller
- Preventative Maintenance
  - Log data management
    - : Daily report generation of operation data, abnormal data and etc.
- Operational Cost Saving
  - Cost saving through centralized monitoring
- Auxiliary Function
  - Control of peripheral equipment, load control

# Options check list

## Absorption chiller standard summary

Items		Standard	Option
	Main Power	<input checked="" type="checkbox"/> 380V	<input type="checkbox"/> 400V <input type="checkbox"/> 415V <input type="checkbox"/> 440V
Control Pannel	Controller	<input checked="" type="checkbox"/> Micom	
	Communication	<input checked="" type="checkbox"/> Modbus, RS-485	<input type="checkbox"/> BACnet <input type="checkbox"/> TCP/IP(Ethernet) <input checked="" type="checkbox"/> Lonwork
	Color	<input checked="" type="checkbox"/> Warm Gray	<input type="checkbox"/> etc. ( Munsell NO. : )
	Protection Grade	<input checked="" type="checkbox"/> IP52	<input type="checkbox"/> IP41 <input type="checkbox"/> IP54
Factory Wiring		<input checked="" type="checkbox"/> Open Wiring	<input type="checkbox"/> Flexible
Chilled Water	Nozzle	<input checked="" type="checkbox"/> ANSI-Flange	<input type="checkbox"/> KS-Flange <input type="checkbox"/> DIN-Flange <input type="checkbox"/> etc ( )
	Flow Proof Type	<input checked="" type="checkbox"/> DP Swich	<input type="checkbox"/> Flow Switch <input type="checkbox"/> N/A
	Temp. Sensor	<input checked="" type="checkbox"/> Inlet+outlet	
Cooling Water	Nozzle	<input checked="" type="checkbox"/> ANSI-Flange	<input type="checkbox"/> KS-Flange <input type="checkbox"/> DIN-Flange <input type="checkbox"/> etc ( )
	Flow Proof Type	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> DP S/W <input type="checkbox"/> Flow Switch
	Temp. Sensor	<input checked="" type="checkbox"/> Inlet+outlet	<input type="checkbox"/> Inlet+outlet
Purging	Solenoid v/v	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes
	Automation Purge	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes
Shipping	Burner	<input checked="" type="checkbox"/> Combination	<input type="checkbox"/> Separate
	Steam control V/V	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	Hot water control V/V	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	Solution Charging	<input checked="" type="checkbox"/> Separate	<input type="checkbox"/> Factory Charge <input type="checkbox"/> Exemption <input type="checkbox"/> etc ( )
Body Color		<input checked="" type="checkbox"/> Morning Gray	<input type="checkbox"/> etc (Munsell NO. )
Insulation		<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes
Insulation color		<input checked="" type="checkbox"/> Black	<input type="checkbox"/> etc (Munsell NO. )
Packing		<input checked="" type="checkbox"/> Shrink film	<input type="checkbox"/> Wood packing
Vibration Isolator		<input checked="" type="checkbox"/> Neoprene PAD	<input type="checkbox"/> N/A
Factory Performance Test		<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Report only <input type="checkbox"/> Customer Withness (date . )
Warranty		<input type="checkbox"/> 1yr	<input type="checkbox"/> 2yr <input type="checkbox"/> etc ( yr)
Sectional shipment		<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes
Solution Filter		<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes
Pump Inlet/Outlet shut-off valve		<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes
Auto purge system		<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes
Companion flange		<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes

Leaving chilled water temperature is available from 5°C

Entering cooling water temperature is available from 22°C

# LG Absorption chiller tube material



## Absorption chiller material summary

Part	Available	Material			
		H-type (WCDH/WGSH Series)	N-type (WCDN/WCDN(3) Series)	S-type (WCDS/WGSS Series)	MH-type (WCMH Series)
Lower Unit	Evaporator Tube	Copper		Stainless Steel	Copper
	Absorber Tube	Copper		Stainless Steel	Copper
Upper Unit	Condenser Tube	Copper		Stainless Steel	Copper
	Generator Tube		Copper		Stainless Steel
High Temp. Unit	High Generator Tube		Carbon Steel		-
Upper, Lower High Temp. Unit	Shell			Rolled Steel	
	Tube Sheet			Rolled Steel	
	Eliminator			Stainless Steel	
	WaterBox			Rolled Steel	
	Pipings			Carbon Steel	

Part	Available	Material	
		2H-type (WC2H Series)	2N-type (WC2N Series)
Lower Unit	Evaporator Tube	Copper	Copper
	Absorber Tube	Copper	Stainless Steel
Upper Unit	2nd Generator Tube	Copper	Stainless Steel
	Generator Tube	Stainless Steel	Stainless Steel
High Temp. Unit	1st Generator Tube	Stainless Steel	Stainless Steel
	Aux. Generator Tube	Stainless Steel	Stainless Steel
	Condenser Tube	Copper	Copper
Upper, Lower High Temp. Unit	Shell		Rolled Steel
	Tube Sheet		Rolled Steel
	Eliminator		Stainless Steel
	WaterBox		Rolled Steel
	Pipings		Carbon Steel

# LG Absorption chiller tube material



## Absorption chiller material summary

Part	Available	Material
		HH-type (WCHA Series)
Lower Unit	Evaporator Tube	Copper
	Absorber Tube	Copper
Upper Unit	Condenser Tube	Copper
	Low Generator Tube	Copper
	Hot W. Generator Tube	Copper
High Shell Unit	Exh. Generator Tube	Carbon Steel
	High Generator Tube	Carbon Steel
Upper, Lower High Temp. Unit	Shell	Rolled Steel
	Tube Sheet	Rolled Steel
	Eliminator	Stainless Steel
	WaterBox	Rolled Steel
	Pipings	Carbon Steel



## WCDH Series COP1.51

Model name		WCDH010	WCDH012	WCDH015	WCDH018	WCDH021	WCDH024	
Cooling capacity	usRT	100	120	150	180	210	240	
	kW	352	422	527	633	738	844	
Heating capacity	kcal/h	253,000	253,000	303,600	379,500	455,400	531,300	
	kW	294	294	353	441	530	618	
Chilled water data	Temperature	°C 12.0 → 7.0						
	Water Flow rate	m <sup>3</sup> /h	60.5	72.6	90.7	108.9	127	145.2
	Pressure Drop	mAq	6.2	6.3	8.0	8.3	8.0	8.1
	Connection size	A(mm)	100	100	100	100	125	125
		B(inch)	4	4	4	4	5	5
Hot water data	Temperature	°C 56.2 → 60.0						
	Water Flow rate	m <sup>3</sup> /h	60.5	72.6	90.7	108.9	127	145.2
	Pressure Drop	mAq	6.2	6.3	8.0	8.3	8.0	8.1
	Connection size	A(mm)	100	100	100	100	125	125
		B(inch)	4	4	4	4	5	5
Cooling water data	Temperature	°C 32.0 → 37.0						
	Water Flow rate	m <sup>3</sup> /h	100	120	150	180	210	240
	Pressure Drop	mAq	3.9	4.2	6.1	6.9	6.1	6.6
	Connection size	A(mm)	125	125	125	125	150	150
		B(inch)	5	5	5	5	6	6
Fuel (Gas)	Nozzle Size	A(mm)	40 (at 4,000mAq)					
		B(inch)	1 1/2 (at 4,000mAq)					
	Cooling	Nm <sup>3</sup> /h	21.4	25.7	32.1	38.5	44.9	51.3
	Heating	Nm <sup>3</sup> /h	27.5	27.5	33.0	41.2	49.4	57.7
Electrical data	Source	V	3ø 220/380/440V, 50Hz/60Hz					
	Total Current	A	12.2	12.2	15.6	15.6	16.8	16.8
	Wire Size	mm <sup>2</sup>	4	4	4	4	4	4
	Power	kVA	8.2	9.1	10.6	11.2	12.1	12.1
	Absorbent Pump No.1	kW(A)	1.5(5.43)	1.5(5.43)	2.4(6.4)	2.4(6.4)	2.4(6.4)	2.4(6.4)
	Absorbent Pump No.2	kW(A)	0.4(1.6)	0.4(1.6)	1.2(4.0)	1.2(4.0)	1.2(4.0)	1.2(4.0)
	Refrigerant Pump	kW(A)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.2(1.1)
	Purge Pump	kW(A)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)
	BuDHer Blower (Gas)	kW(A)	0.72(2.1)	0.72(2.1)	0.72(2.1)	1.5(3.3)	1.5(3.3)	1.5(3.3)
Dimension	Length	mm	2,895	2,895	3,745	3,745	3,795	3,795
	Width	mm	1,965	1,965	1,965	2,095	2,150	2,170
	Height	mm	2,070	2,070	2,070	2,070	2,415	2,415
Rigging	Operating	ton	4.9	5.2	6.2	6.9	8.0	8.6
	Total Shipping	ton	4.7	4.9	5.8	6.4	7.3	7.9
	Max Shipping	ton	3.8	4.0	4.6	5.0	5.8	6.1
Flue Connection Size	mm	340 x 320	340 x 320	340 x 320	340 x 320	340 x 320	380 x 430	
Clearance For Tube Removal		2,400	2,400	3,400	3,400	3,400	3,400	

**Note:**

- 1.usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard inlet water & outlet water Temperature of Chilled water : 12→7 °C
3. Standard inlet water & outlet water Temperature of Hot water : 56.2→60 °C
4. Standard inlet water & outlet water Temperature of Cooling water : 32→37 °C
5. Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW(0.0001 m<sup>2</sup>.h.°C)
6. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
7. Standard gas pressure : 4,000mmAq
8. Recommend Gas pressure : Low Pressure 200mmAq, Mid. Pressure 900mmAq, High Pressure 4000mmAq

9. Standard low calorific power : 9,360 kcal/Nm<sup>3</sup>
10. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
11. Power supply wire size is based on the due of metal conduit and 40 °C of ambient temperature.
12. Total Shipping Weight include weight of the burner & liquid.
13. The specifications are subject to change without prior notice.
14. For other than above this table, contact nearest LG Electronics office

## WCDH Series COP1.51

Model name		WCDH028	WCDH032	WCDH036	WCDH040	WCDH045	WCDH050	
Cooling capacity	usRT	280	320	360	400	450	500	
	kW	985	1,125	1,266	1,407	1,582	1,758	
Heating capacity	kcal/h	607,200	708,400	809,600	910,800	1,012,000	1,138,500	
	kW	706	824	941	1,059	1,177	1,324	
Chilled water data	Temperature	°C 12.0 → 7.0						
	Water Flow rate	m <sup>3</sup> /h	169.3	193.5	217.7	241.9	272.2	302.4
	Pressure Drop	mAq	5.4	5.5	5.6	5.8	5.1	5.2
	Connection size	A(mm)	150	150	150	150	200	200
		B(inch)	6	6	6	6	8	8
Hot water data	Temperature	°C 56.2 → 60.0						
	Water Flow rate	m <sup>3</sup> /h	169.3	193.5	217.7	241.9	272.2	302.4
	Pressure Drop	mAq	5.4	5.5	5.6	5.8	5.1	5.2
	Connection size	A(mm)	150	150	150	150	200	200
		B(inch)	6	6	6	6	8	8
Cooling water data	Temperature	°C 32.0 → 37.0						
	Water Flow rate	m <sup>3</sup> /h	280	320	360	400	450	500
	Pressure Drop	mAq	8.3	8.8	7.4	8.0	8.8	9.7
	Connection size	A(mm)	200	200	200	200	250	250
		B(inch)	8	8	8	8	10	10
Fuel (Gas)	Nozzle Size	A(mm)	40 (at 4,000mmAq)			50 (at 4,000mmAq)		
		B(inch)	1 1/2 (at 4,000mmAq)			2 (at 4,000mmAq)		
	Cooling	Nm <sup>3</sup> /h	59.9	68.4	77.0	85.5	97.6	106.9
	Heating	Nm <sup>3</sup> /h	65.9	76.9	87.9	98.9	109.9	123.6
Electrical data	Source	V	3ø 220/380/440V, 50Hz/60Hz					
	Total Current	A	23.9	23.9	23.9	26.9	26.9	26.9
	Wire Size	mm <sup>2</sup>	6	6	10	10	10	10
	Power	kVA	15.9	17.9	19.8	19.8	17.7	17.7
	Absorbent Pump No.1	kW(A)	3.4(10.3)	3.4(10.3)	3.4(10.3)	3.4(10.3)	3.4(10.3)	3.4(10.3)
	Absorbent Pump No.2	kW(A)	1.5(5.5)	1.5(5.5)	1.5(5.5)	1.5(5.5)	2.0(5.2)	2.0(5.2)
	Refrigerant Pump	kW(A)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)
	Purge Pump	kW(A)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)
	BuDHer Blower (Gas)	kW(A)	2.2(4.7)	2.2(4.7)	2.2(4.7)	3.7(7.7)	3.7(7.7)	3.7(7.7)
Dimension	Length	mm	4,815	4,815	4,890	4,890	4,900	4,900
	Width	mm	2,225	2,225	2,430	2,515	2,765	2,855
	Height	mm	2,415	2,415	2,590	2,590	2,925	2,925
Rigging	Operating	ton	10.4	10.9	12.4	13.2	15.5	17.3
	Total Shipping	ton	9.5	10.0	11.1	11.9	13.9	15.6
	Max Shipping	ton	7.4	7.8	8.7	9.4	11.0	12.4
Flue Connection Size	mm	380 x 430	380 x 430	380 x 430	450 x 430	450 x 430	520 x 550	
Clearance For Tube Removal		4,500	4,500	4,500	4,500	4,500	4,500	

Note:

- 1.usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard inlet water & outlet water Temperature of Chilled water : 12→7°C
3. Standard inlet water & outlet water Temperature of Hot water : 56.2→60°C
4. Standard inlet water & outlet water Temperature of Cooling water : 32→37°C
5. Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW(0.0001 m<sup>2</sup>.h.°C)
6. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
7. Standard gas pressure : 4,000mmAq
8. Recommend Gas pressure : Low Pressure 200mmAq, Mid. Pressure 900mmAq, High Pressure 4000mmAq

9. Standard low calorific power : 9,360 kcal/Nm<sup>3</sup>
10. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
11. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
12. Total Shipping Weight include weight of the burner & liquid.
13. The specifications are subject to change without prior notice.
14. For other than above this table, contact nearest LG Electronics office

## WCDH Series COP1.51

Model name		WCDH056	WCDH063	WCDH070	WCDH080	WCDH090	WCDH100	
Cooling capacity	usRT	560	630	700	800	900	1000	
	kW	1,969	2,215	2,461	2,813	3,165	3,516	
Heating capacity	kcal/h	1,265,000	1,416,800	1,593,900	1,771,000	2,024,000	2,277,000	
	kW	1,471	1,647	1,853	2,059	2,353	2,648	
Chilled water data	Temperature	°C 12.0 → 7.0						
	Water Flow rate	m <sup>3</sup> /h	338.7	381	423.4	483.8	544.3	604.8
	Pressure Drop	mAq	5.2	7.2	9.6	4.4	6.0	7.9
	Connection size	A(mm)	200	200	200	250	250	250
		B(inch)	8	8	8	10	10	10
Hot water data	Temperature	°C 56.2 → 60.0						
	Water Flow rate	m <sup>3</sup> /h	338.7	381	423.4	483.8	544.3	604.8
	Pressure Drop	mAq	5.2	7.2	9.6	4.4	6.0	7.9
	Connection size	A(mm)	200	200	200	250	250	250
		B(inch)	8	8	8	10	10	10
Cooling water data	Temperature	°C 32.0 → 37.0						
	Water Flow rate	m <sup>3</sup> /h	560	630	700	800	900	1,000
	Pressure Drop	mAq	8.9	11.9	15.3	6.9	9.3	12.3
	Connection size	A(mm)	300	300	300	350	350	350
		B(inch)	12	12	12	14	14	14
Fuel (Gas)	Nozzle Size	A(mm)	50 (at 4,000mmAq)					
		B(inch)	2 (at 4,000mmAq)					
	Cooling	Nm <sup>3</sup> /h	119.7	134.7	149.7	171.0	192.4	213.8
	Heating	Nm <sup>3</sup> /h	137.4	153.8	173.1	192.3	219.8	247.2
Electrical data	Source	V	3ø 220/380/440V, 50Hz/60Hz					
	Total Current	A	35.7	35.7	35.7	46.9	51.9	51.9
	Wire Size	mm <sup>2</sup>	16	16	16	16	25	35
	Power	kVA	23.5	23.5	23.5	29.2	32.5	36.8
	Absorbent Pump No.1	kW(A)	6.6(16.2)	6.6(16.2)	6.6(16.2)	5.5(20.0)	7.5(25.0)	7.5(25.0)
	Absorbent Pump No.2	kW(A)	2.0(5.2)	2.0(5.2)	2.0(5.2)	2.2(6.7)	2.2(6.7)	2.2(6.7)
	Refrigerant Pump	kW(A)	0.4(1.4)	0.4(1.4)	0.4(1.4)	1.5(3.9)	1.5(3.9)	1.5(3.9)
	Purge Pump	kW(A)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)
	BuDHer Blower (Gas)	kW(A)	5.5(10.6)	5.5(10.6)	5.5(10.6)	7.5(14.0)	7.5(14.0)	7.5(14.0)
Dimension	Length	mm	5,310	5,520	6,010	5,635	6,130	6,590
	Width	mm	3,025	3,150	3,150	3,800	3,920	3,920
	Height	mm	3,295	3,295	3,295	3,550	3,600	3,600
Rigging	Operating	ton	21.2	24.4	27.2	35.8	38.4	41.9
	Total Shipping	ton	18.7	21.6	24.3	32.3	34.2	37.5
	Max Shipping	ton	15.0	17.5	19.5	25.2	27.0	28.8
Flue Connection Size	mm	520 x 550	650 x 550	650 x 550	650 x 550	750 x 550	750 x 550	
Clearance For Tube Removal		4,500	5,200	5,700	5,200	5,700	6,200	

**Note:**

- 1.usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard inlet water & outlet water Temperature of Chilled water : 12→7 °C
3. Standard inlet water & outlet water Temperature of Hot water : 56.2→60 °C
4. Standard inlet water & outlet water Temperature of Cooling water : 32→37 °C
5. Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW(0.0001 m<sup>2</sup>.h.°C)
6. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
7. Standard gas pressure : 4,000mmAq
8. Recommend Gas pressure : Low Pressure 200mmAq, Mid. Pressure 900mmAq, High Pressure 4000mmAq

9. Standard low calorific power : 9,360 kcal/Nm<sup>3</sup>
10. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
11. Power supply wire size is based on the due of metal conduit and 40 °C of ambient temperature.
12. Total Shipping Weight include weight of the burner & liquid.
13. The specifications are subject to change without prior notice.
14. For other than above this table, contact nearest LG Electronics office

## WCDH Series COP1.51

Model name		WCDH110	WCDH120	WCDH130	WCDH140	WCDH150	
Cooling capacity	usRT	1,100	1,200	1,300	1,400	1,500	
	kW	3,868	4,220	4,571	4,923	5,274	
Heating capacity	kcal/h	2,530,000	2,783,000	3,036,000	3,289,000	3,542,000	
	kW	2,942	3,236	3,530	3,824	4,119	
Chilled water data	Temperature	°C 12.0 → 7.0					
	Water Flow rate	m <sup>3</sup> /h	665.3	725.8	786.2	846.7	907.2
	Pressure Drop	mAq	5.8	7.4	9.2	7.6	9.3
	Connection size	A(mm)	300	300	300	350	350
		B(inch)	12	12	12	14	14
Hot water data	Temperature	°C 56.2 → 60.0					
	Water Flow rate	m <sup>3</sup> /h	665.3	725.8	786.2	846.7	907.2
	Pressure Drop	mAq	5.8	6.1	9.2	7.6	9.3
	Connection size	A(mm)	300	300	300	350	350
		B(inch)	12	12	12	14	14
Cooling water data	Temperature	°C 32.0 → 37.0					
	Water Flow rate	m <sup>3</sup> /h	1,100	1,200	1,300	1,400	1,500
	Pressure Drop	mAq	9.2	11.7	14.6	11.4	13.9
	Connection size	A(mm)	400	400	400	400	400
		B(inch)	16	16	16	16	16
Fuel (Gas)	Nozzle Size	A(mm)	65 (at 4,000mmAq)				
		B(inch)	2 1/2 (at 4,000mmAq)				
	Cooling	Nm <sup>3</sup> /h	235.2	256.6	277.9	299.3	320.7
	Heating	Nm <sup>3</sup> /h	274.7	302.2	329.6	357.1	384.6
Electrical data	Source	V	3ø 220/380/440V, 50Hz/60Hz				
	Total Current	A	73.7	73.7	73.7	73.7	73.7
	Wire Size	mm <sup>2</sup>	35	35	35	35	35
	Power	kVA	48.5	48.5	48.5	48.5	48.5
	Absorbent Pump No.1	kW(A)	7.5(25.0)	7.5(25.0)	7.5(25.0)	7.5(25.0)	7.5(25.0)
	Absorbent Pump No.2	kW(A)	5.5(21.0)	5.5(21.0)	5.5(21.0)	5.5(21.0)	5.5(21.0)
	Refrigerant Pump	kW(A)	1.5(3.9)	1.5(3.9)	1.5(3.9)	1.5(3.9)	1.5(3.9)
	Purge Pump	kW(A)	0.75(2.5)	0.75(2.5)	0.75(2.5)	0.75(2.5)	0.75(2.5)
Dimension	BuDHer Blower (Gas)	kW(A)	11.0(20.5)	11.0(20.5)	11.0(20.5)	11.0(20.5)	11.0(20.5)
	Length	mm	6,140	6,660	7,160	6,640	7,140
		mm	4,200	4,300	4,300	4,700	4,850
mm		3,780	3,780	3,780	3,840	3,840	
Rigging	Operating	ton	45.6	49.7	54.1	58.5	62.7
	Total Shipping	ton	41.3	45.2	49.2	53.1	57.0
	Max Shipping	ton	31.2	33.6	36.0	38.4	40.8
Flue Connection Size	mm	750 x 550	850 x 550	850 x 550	850 x 550	850 x 550	
Clearance For Tube Removal		5,700	6,200	6,700	6,200	6,700	

**Note:**

- 1.usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard inlet water & outlet water Temperature of Chilled water : 12→7°C
3. Standard inlet water & outlet water Temperature of Hot water : 56.2→60°C
4. Standard inlet water & outlet water Temperature of Cooling water : 32→37°C
5. Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW(0.0001 m<sup>2</sup>.h.°C)
6. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
7. Standard gas pressure : 4,000mmAq
8. Recommend Gas pressure : Low Pressure 200mmAq, Mid. Pressure 900mmAq, High Pressure 4000mmAq

9. Standard low calorific power : 9,360 kcal/Nm<sup>3</sup>
10. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
11. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
12. Total Shipping Weight include weight of the burner & liquid.
13. The specifications are subject to change without prior notice.
14. For other than above this table, contact nearest LG Electronics office

## WCDN Series COP 1.34

Model name		WCDN010	WCDN012	WCDN015	WCDN018	WCDN021	WCDN024	
Cooling capacity	usRT	100	120	150	180	210	240	
	kW	352	422	528	633	739	844	
Heating capacity	kcal/h	267,000	319,000	400,000	479,000	559,000	639,000	
	kW	311	371	465	557	650	743	
Chilled water data	Temperature	°C 12.0 → 7.0						
	Water Flow rate	m <sup>3</sup> /h	60.5	72.6	90.7	108.9	127	145.2
	Pressure Drop	mAq	5.3	5.7	5.2	5.7	4.7	5.2
	Connection size	A(mm)	100	100	100	100	125	125
		B(inch)	4	4	4	4	5	5
Hot water data	Temperature	°C 55.6 → 60.0						
	Water Flow rate	m <sup>3</sup> /h	60.5	72.6	90.7	108.9	127	145.2
	Pressure Drop	mAq	5.3	5.7	5.2	5.7	4.7	5.2
	Connection size	A(mm)	100	100	100	100	125	125
		B(inch)	4	4	4	4	5	5
Cooling water data	Temperature	°C 32.0 → 37.0						
	Water Flow rate	m <sup>3</sup> /h	100	120	150	180	210	240
	Pressure Drop	mAq	7.4	7.8	7.8	8.2	8.1	8.9
	Connection size	A(mm)	125	125	125	125	150	150
		B(inch)	5	5	5	5	6	6
Fuel (Gas)	Nozzle Size	A(mm)	40 (at 4,000mAq)					
		B(inch)	1 1/2 (at 4,000mAq)					
	Cooling	Nm <sup>3</sup> /h	24.0	28.8	36.0	43.3	50.5	57.7
	Heating	Nm <sup>3</sup> /h	28.9	34.6	43.3	52.0	60.6	69.3
Electrical data	Source	V	3ø 220/380/440V					
	Total Current	A	12.2	12.2	15.6	16.8	16.8	16.8
	Wire Size	mm <sup>2</sup>	4	4	4	4	4	4
	Power	kVA	8.2	8.2	10.5	11.3	11.3	11.3
	Absorbent Pump No.1	kW(A)	1.5(5.43)	1.5(5.43)	2.4(6.4)	2.4(6.4)	2.4(6.4)	2.4(6.4)
	Absorbent Pump No.2	kW(A)	0.4(1.6)	0.4(1.6)	1.2(4.0)	1.2(4.0)	1.2(4.0)	1.2(4.0)
	Refrigerant Pump	kW(A)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.2(1.1)
	Purge Pump	kW(A)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)
BuDHer Blower (Gas)	kW(A)	0.72(2.1)	0.72(2.1)	0.72(2.1)	1.5(3.3)	1.5(3.3)	1.5(3.3)	
Dimension	Length	mm	3070	3070	3740	3820	3860	3860
	Width	mm	1930	1930	2040	2070	2280	2280
	Height	mm	2130	2130	2130	2130	2290	2290
Rigging	Operating	ton	5.1	5.5	6.7	7.2	8.8	9.2
	Total Shipping	ton	4.6	5.0	6.1	6.6	7.9	8.3
	Max Shipping	ton	3.8	4.0	4.8	5.2	6.3	6.6
Flue Connection Size	mm	280 x 210	280 x 210	280 x 210	280 x 210	310 x 310	310 x 310	
Clearance For Tube Removal		2,400	2,400	3,400	3,400	3,400	3,400	

- Note:
- 1 usRT = 3,024kcal/h, 1kW = 860kcal/h
  2. Standard inlet water & outlet water Temperature of Chilled water : 12→7 °C
  3. Standard inlet water & outlet water Temperature of Hot water : 55.6→60 °C
  4. Standard inlet water & outlet water Temperature of Cooling water : 32→37 °C
  5. Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW(0.0001 m<sup>2</sup>.h.°C)
  6. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
  7. Standard gas pressure : 4,000mmAq
  8. Recommend Gas pressure : Low Pressure 200mmAq, Mid. Pressure 900mmAq, High Pressure 4000mmAq
  9. Standard low calorific power : 9,360 kcal/Nm<sup>3</sup>
  10. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
  11. Power supply wire size is based on the due of metal conduit and 40 °C of ambient temperature.
  12. Total Shipping Weight include weight of the burner & liquid.
  13. The specifications are subject to change without prior notice.
  14. For other than above this table, contact nearest LG Electronics office

## WCDN Series COP 1.34

Model name		WCDN028	WCDN032	WCDN036	WCDN040	WCDN045	WCDN050	
Cooling capacity	usRT	280	320	360	400	450	500	
	kW	985	1,125	1,266	1,407	1,583	1,758	
Heating capacity	kcal/h	745,000	852,000	958,000	1,064,000	1,138,500	1,265,000	
	kW	866	991	1,114	1,237	1,324	1,471	
Chilled water data	Temperature	°C 12.0 → 7.0						
	Water Flow rate	m <sup>3</sup> /h	169.3	193.5	217.7	241.9	272.2	302.4
	Pressure Drop	mAq	10.7	10.7	10.8	11.6	10.7	11.0
	Connection size	A(mm)	150	150	150	150	200	200
		B(inch)	6	6	6	6	8	8
Hot water data	Temperature	°C 55.6 → 60.0						
	Water Flow rate	m <sup>3</sup> /h	169.3	193.5	217.7	241.9	272.2	302.4
	Pressure Drop	mAq	10.7	10.7	10.8	11.6	10.7	11.0
	Connection size	A(mm)	150	150	150	150	200	200
		B(inch)	6	6	6	6	8	8
Cooling water data	Temperature	°C 32.0 → 37.0						
	Water Flow rate	m <sup>3</sup> /h	280	320	360	400	450	500
	Pressure Drop	mAq	14.5	15.1	14.8	15.5	14.2	14.2
	Connection size	A(mm)	200	200	200	200	250	250
		B(inch)	8	8	8	8	10	10
Fuel (Gas)	Nozzle Size	A(mm)	40 (at 4,000mmAq)			50 (at 4,000mmAq)		
		B(inch)	1 1/2 (at 4,000mmAq)			2 (at 4,000mmAq)		
	Cooling	Nm <sup>3</sup> /h	67.3	76.9	86.5	96.1	108.1	120.2
	Heating	Nm <sup>3</sup> /h	80.8	92.4	103.9	115.5	129.9	144.4
Electrical data	Source	V	3ø 220/380/440V					
	Total Current	A	23.9	23.9	26.9	26.9	26.9	26.9
	Wire Size	mm <sup>2</sup>	6	6	10	10	10	10
	Power	kVA	14.9	15.9	15.9	17.9	17.9	17.9
	Absorbent Pump No.1	kW(A)	3.4(10.3)	3.4(10.3)	3.4(10.3)	3.4(10.3)	3.4(10.3)	3.4(10.3)
	Absorbent Pump No.2	kW(A)	1.5(5.5)	1.5(5.5)	1.5(5.5)	1.5(5.5)	2.0(5.2)	2.0(5.2)
	Refrigerant Pump	kW(A)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)
	Purge Pump	kW(A)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)
	BuDHer Blower (Gas)	kW(A)	2.2(4.7)	2.2(4.7)	3.0(7.7)	3.0(7.7)	3.0(7.7)	3.0(7.7)
Dimension	Length	mm	4800	4800	4915	4915	5,065	5,265
	Width	mm	2280	2280	2570	2620	2,890	2,890
	Height	mm	2290	2290	2535	2535	2,790	2,790
Rigging	Operating	ton	10.8	11.5	13.8	14.6	17.1	18.0
	Total Shipping	ton	9.8	10.3	12.4	13.1	15.3	16.1
	Max Shipping	ton	7.7	8.1	9.8	10.3	12.3	12.8
Flue Connection Size	mm	310 x 310	310 x 310	360 x 310	360 x 310	410 x 310	410 x 310	
Clearance For Tube Removal		4,500	4,500	4,500	4,500	4,500	4,500	

**Note:**

- 1.usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard inlet water & outlet water Temperature of Chilled water : 12→7°C
3. Standard inlet water & outlet water Temperature of Hot water : 55.6→60°C
4. Standard inlet water & outlet water Temperature of Cooling water : 32→37°C
5. Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW(0.0001 m<sup>2</sup>.h.°C)
6. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
7. Standard gas pressure : 4,000mmAq
8. Recommend Gas pressure : Low Pressure 200mmAq, Mid. Pressure 900mmAq, High Pressure 4000mmAq

9. Standard low calorific power : 9,360 kcal/Nm<sup>3</sup>
10. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
11. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
12. Total Shipping Weight include weight of the burner & liquid.
13. The specifications are subject to change without prior notice.
14. For other than above this table, contact nearest LG Electronics office

## WCDN Series COP 1.34

Model name		WCDN056	WCDN063	WCDN070	
Cooling capacity	usRT	560	630	700	
	kW	1,969	2,216	2,462	
Heating capacity	kcal/h	1,416,800	1,593,900	1,771,000	
	kW	1,648	1,854	2,060	
Chilled water data	Temperature	°C 12.0 → 7.0			
	Water Flow rate	m <sup>3</sup> /h 338.7	381	423.4	
	Pressure Drop	mAq 4.1	5.6	7.5	
	Connection size	A(mm)	200	200	200
		B(inch)	8	8	8
Hot water data	Temperature	°C 55.6 → 60.0			
	Water Flow rate	m <sup>3</sup> /h 338.7	381	423.4	
	Pressure Drop	mAq 4.1	5.6	7.5	
	Connection size	A(mm)	200	200	200
		B(inch)	8	8	8
Cooling water data	Temperature	°C 32.0 → 37.0			
	Water Flow rate	m <sup>3</sup> /h 560	630	700	
	Pressure Drop	mAq 6.2	8.4	11.0	
	Connection size	A(mm)	300	300	300
		B(inch)	12	12	12
Fuel (Gas)	Nozzle Size	A(mm)	50 (at 4,000mmAq)		
		B(inch)	2 (at 4,000mmAq)		
	Cooling	Nm <sup>3</sup> /h 134.6	151.4	168.2	
	Heating	Nm <sup>3</sup> /h 161.7	181.9	202.1	
Electrical data	Source	V 3ø 220/380/440V			
	Total Current	A 35.7	35.7	35.7	
	Wire Size	mm <sup>2</sup> 16	16	16	
	Power	kVA 23.5	23.5	23.5	
	Absorbent Pump No.1	kW(A) 6.6(16.2)	6.6(16.2)	6.6(16.2)	
	Absorbent Pump No.2	kW(A) 2.0(5.2)	2.0(5.2)	2.0(5.2)	
	Refrigerant Pump	kW(A) 0.4(1.4)	0.4(1.4)	0.4(1.4)	
	Purge Pump	kW(A) 0.4(1.45)	0.4(1.45)	0.4(1.45)	
Dimension	Length	mm 5,410	5,670	6,115	
	Width	mm 3,355	3,375	3,375	
	Height	mm 3,235	3,235	3,235	
Rigging	Operating	ton 24.0	26.3	27.8	
	Total Shipping	ton 21.3	23.3	24.7	
	Max Shipping	ton 17.7	19.2	20.2	
Flue Connection Size	mm	500 x 350	500 x 350	500 x 350	
Clearance For Tube Removal		4,500	5,200	5,700	

**Note:**

- 1.usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard inlet water & outlet water Temperature of Chilled water : 12→7 °C
3. Standard inlet water & outlet water Temperature of Hot water : 55.6→60 °C
4. Standard inlet water & outlet water Temperature of Cooling water : 32→37 °C
5. Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h. °C)
6. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
7. Standard gas pressure : 4,000mmAq
8. Recommend Gas pressure : Low Pressure 200mmAq, Mid. Pressure 900mmAq, High Pressure 4000mmAq

9. Standard low calorific power : 9,360 kcal/Nm<sup>3</sup>
10. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
11. Power supply wire size is based on the due of metal conduit and 40 °C of ambient temperature.
12. Total Shipping Weight include weight of the burner & liquid.
13. The specifications are subject to change without prior notice.
14. For other than above this table, contact nearest LG Electronics office



## WCDN(3) Series COP 1.41

Model name		WCDN010	WCDN012	WCDN015	WCDN018	WCDN021	WCDN024	
Cooling capacity	usRT	100	120	150	180	210	240	
	kW	352	422	528	633	739	844	
Heating capacity	kcal/h	267,000	319,000	400,000	479,000	559,000	639,000	
	kW	310	371	465	557	650	743	
Chilled water data	Temperature	°C 12.0 → 7.0						
	Water Flow rate	m <sup>3</sup> /h	60.48	72.6	90.7	108.9	127	145.2
	Pressure Drop	mAq	6.2	6.3	8.0	8.3	8.0	8.1
	Connection size	A(mm)	100	100	100	100	125	125
		B(inch)	4	4	4	4	5	5
Hot water data	Temperature	°C 55.6 → 60.0						
	Water Flow rate	m <sup>3</sup> /h	60.48	72.6	90.7	108.9	127	145.2
	Pressure Drop	mAq	6.2	6.3	8.0	8.3	8.0	8.1
	Connection size	A(mm)	100	100	100	100	125	125
		B(inch)	4	4	4	4	5	5
Cooling water data	Temperature	°C 32.0 → 37.0						
	Water Flow rate	m <sup>3</sup> /h	100	120	150	180	210	240
	Pressure Drop	mAq	3.7	4.0	6.5	7.1	5.5	6.5
	Connection size	A(mm)	125	125	125	125	150	150
		B(inch)	5	5	5	5	6	6
Fuel (Gas)	Nozzle Size	A(mm)	40 (at 4,000mmAq)					
		B(inch)	1 1/2 (at 4,000mmAq)					
	Cooling	Nm <sup>3</sup> /h	22.9	27.5	34.3	41.2	48.1	54.9
	Heating	Nm <sup>3</sup> /h	30.5	36.4	45.7	54.7	63.8	72.9
Electrical data	Source	V	3ø 220/380/440V					
	Total Current	A	12.2	12.2	15.6	16.8	16.8	16.8
	Wire Size	mm <sup>2</sup>	4	4	4	4	4	4
	Power	kVA	8.0	8.8	11.1	11.1	12.0	12.0
	Absorbent Pump No.1	kW(A)	1.5(5.43)	1.5(5.43)	2.4(6.4)	2.4(6.4)	2.4(6.4)	2.4(6.4)
	Absorbent Pump No.2	kW(A)	0.4(1.6)	0.4(1.6)	1.2(4.0)	1.2(4.0)	1.2(4.0)	1.2(4.0)
	Refrigerant Pump	kW(A)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.2(1.1)
	Purge Pump	kW(A)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)
	BuDHer Blower (Gas)	kW(A)	0.72(2.1)	0.72(2.1)	0.72(2.1)	1.5(3.3)	1.5(3.3)	1.5(3.3)
Dimension	Length	mm	3,165	3,165	3,745	3,665	3,705	3,795
	Width	mm	2,000	2,045	2,095	2,095	2,150	2,170
	Height	mm	2,070	2,070	2,070	2,070	2,415	2,415
Rigging	Operating	ton	4.9	5.3	6.4	7.0	8.1	8.6
	Total Shipping	ton	4.6	4.9	5.9	6.5	7.4	7.9
	Max Shipping	ton	3.8	4.0	4.7	5.1	5.8	6.2
Flue Connection Size	mm	280 x 210	280 x 210	280 x 210	280 x 210	310 x 310	310 x 310	
Clearance For Tube Removal		2,400	2,400	3,400	3,400	3,400	3,400	

**Note:**

- 1.usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard inlet water & outlet water Temperature of Chilled water : 12→7°C
3. Standard inlet water & outlet water Temperature of Hot water : 55.6→60°C
4. Standard inlet water & outlet water Temperature of Cooling water : 32→37°C
5. Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h.°C)
6. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
7. Standard gas pressure : 4,000mmAq
8. Recommend Gas pressure : Low Pressure 200mmAq, Mid. Pressure 900mmAq, High Pressure 4000mmAq

9. Standard low calorific power : 9,360 kcal/Nm<sup>2</sup>
10. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
11. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
12. Total Shipping Weight include weight of the burner & liquid.
13. The specifications are subject to change without prior notice.
14. For other than above this table, contact nearest LG Electronics office

## WCDN(3) Series COP 1.41

Model name		WCDN028	WCDN032	WCDN036	WCDN040	WCDN045	WCDN050	
Cooling capacity	usRT	280	320	360	400	450	500	
	kW	985	1,125	1,266	1,407	1,583	1,758	
Heating capacity	kcal/h	745,000	852,000	958,000	1,064,000	1,193,000	1,326,000	
	kW	866	990	1,113	1,237	1,387	1,541	
Chilled water data	Temperature	°C 12.0 → 7.0						
	Water Flow rate	m <sup>3</sup> /h	169.3	193.5	217.7	241.9	272.2	302.4
	Pressure Drop	mAq	5.4	5.5	5.6	5.8	5.1	5.2
	Connection size	A(mm)	150	150	150	150	200	200
		B(inch)	6	6	6	6	8	8
Hot water data	Temperature	°C 55.6 → 60.0						
	Water Flow rate	m <sup>3</sup> /h	169.3	193.5	217.7	241.9	272.2	302.4
	Pressure Drop	mAq	5.4	5.5	5.6	5.8	5.1	5.2
	Connection size	A(mm)	150	150	150	150	200	200
		B(inch)	6	6	6	6	8	8
Cooling water data	Temperature	°C 32.0 → 37.0						
	Water Flow rate	m <sup>3</sup> /h	280	320	360	400	450	500
	Pressure Drop	mAq	5.3	5.5	5.8	6.1	5.3	5.5
	Connection size	A(mm)	200	200	200	200	250	250
		B(inch)	8	8	8	8	10	10
Fuel (Gas)	Nozzle Size	A(mm)	40 (at 4,000mmAq)			50 (at 4,000mmAq)		
		B(inch)	1 1/2 (at 4,000mmAq)			2 (at 4,000mmAq)		
	Cooling	Nm <sup>3</sup> /h	64.1	73.3	82.4	91.6	103.0	114.5
	Heating	Nm <sup>3</sup> /h	85.0	97.2	109.3	121.4	136.2	151.3
Electrical data	Source	V	3ø 220/380/440V					
	Total Current	A	23.9	23.9	25.6	26.9	26.9	26.9
	Wire Size	mm <sup>2</sup>	6	6	10	10	10	10
	Power	kVA	15.7	17.7	17.7	17.7	17.5	17.7
	Absorbent Pump No.1	kW(A)	3.4(10.3)	3.4(10.3)	3.4(10.3)	3.4(10.3)	3.4(10.3)	3.4(10.3)
	Absorbent Pump No.2	kW(A)	1.5(5.5)	1.5(5.5)	1.5(5.5)	1.5(5.5)	2.0(5.2)	2.0(5.2)
	Refrigerant Pump	kW(A)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)
	Purge Pump	kW(A)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)
Dimension	BuDHer Blower (Gas)	kW(A)	2.2(4.7)	2.2(4.7)	3.0(7.7)	3.0(7.7)	3.0(7.7)	3.0(7.7)
	Length	mm	4,725	4,725	4,890	4,890	4,900	5,205
	Width	mm	2,320	2,260	2,425	2,545	2,840	2,840
Rigging	Height	mm	2,415	2,415	2,590	2,590	2,925	2,925
	Operating	ton	10.2	11.0	12.6	13.5	15.9	17.6
	Total Shipping	ton	9.5	10.0	11.3	12.2	14.2	15.8
Flue Connection Size	Max Shipping	ton	7.4	7.9	8.8	9.5	11.2	12.6
	mm	310 x 310	310 x 310	360 x 310	360 x 310	410 x 310	410 x 310	
Clearance For Tube Removal	mm	4,500	4,500	4,500	4,500	4,500	4,500	

- Note:
- 1 usRT = 3,024kcal/h, 1kW = 860kcal/h
  2. Standard inlet water & outlet water Temperature of Chilled water : 12→7 °C
  3. Standard inlet water & outlet water Temperature of Hot water : 55.6→60 °C
  4. Standard inlet water & outlet water Temperature of Cooling water : 32→37 °C
  5. Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h. °C)
  6. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
  7. Standard gas pressure : 4,000mmAq
  8. Recommend Gas pressure : Low Pressure 200mmAq, Mid. Pressure 900mmAq, High Pressure 4000mmAq
  9. Standard low calorific power : 9,360 kcal/Nm<sup>3</sup>
  10. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
  11. Power supply wire size is based on the due of metal conduit and 40 °C of ambient temperature.
  12. Total Shipping Weight include weight of the burner & liquid.
  13. The specifications are subject to change without prior notice.
  14. For other than above this table, contact nearest LG Electronics office

## WCDN(3) Series COP 1.41

Model name		WCDN056	WCDN063	WCDN070	WCDN080	WCDN090	WCDN100	
Cooling capacity	usRT	560	630	700	800	900	1,000	
	kW	1,969	2,216	2,462	2,813	3,165	3,517	
Heating capacity	kcal/h	1,485,400	1,671,000	1,856,000	2,121,000	2,024,000	2,277,000	
	kW	1,726	1,942	2,157	2,465	2,352	2,646	
Chilled water data	Temperature	°C 12.0 → 7.0						
	Water Flow rate	m <sup>3</sup> /h	338.7	381	423.4	483.8	544.3	604.8
	Pressure Drop	mAq	5.2	7.2	9.6	11.1	15.3	7.9
	Connection size	A(mm)	200	200	200	250	250	250
		B(inch)	8	8	8	10	10	10
Hot water data	Temperature	°C 55.6 → 60.0						
	Water Flow rate	m <sup>3</sup> /h	338.7	381	423.4	483.8	544.3	604.8
	Pressure Drop	mAq	5.2	7.2	9.6	11.1	15.3	7.9
	Connection size	A(mm)	200	200	200	250	250	250
		B(inch)	8	8	8	10	10	10
Cooling water data	Temperature	°C 32.0 → 37.0						
	Water Flow rate	m <sup>3</sup> /h	560	630	700	800	900	1000
	Pressure Drop	mAq	4.6	6.2	8.1	6.8	9.2	9.7
	Connection size	A(mm)	300	300	300	350	350	350
		B(inch)	12	12	12	14	14	14
Fuel (Gas)	Nozzle Size	A(mm)	50 (at 4,000mAq)					
		B(inch)	2 (at 4,000mAq)					
	Cooling	Nm <sup>3</sup> /h	128.2	144.2	160.3	183.2	206.1	229
	Heating	Nm <sup>3</sup> /h	169.5	190.7	211.8	242.1	231	259.9
Electrical data	Source	V	3ø 220/380/440V					
	Total Current	A	35.7	35.7	35.7	46.9	51.9	51.9
	Wire Size	mm <sup>2</sup>	16	16	16	16	25	35
	Power	kVA	23.5	23.5	23.5	29.2	32.5	36.8
	Absorbent Pump No.1	kW(A)	6.6(16.2)	6.6(16.2)	6.6(16.2)	5.5(20.0)	7.5(25.0)	7.5(25.0)
	Absorbent Pump No.2	kW(A)	2.0(5.2)	2.0(5.2)	2.0(5.2)	2.2(6.7)	2.2(6.7)	2.2(6.7)
	Refrigerant Pump	kW(A)	0.4(1.4)	0.4(1.4)	0.4(1.4)	1.5(3.9)	1.5(3.9)	1.5(3.9)
	Purge Pump	kW(A)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)
	BuDHer Blower (Gas)	kW(A)	5.5(10.6)	5.5(10.6)	5.5(10.6)	7.5(14.0)	7.5(14.0)	7.5(14.0)
Dimension	Length	mm	5,050	5,495	6,005	5,635	6,160	6,600
	Width	mm	3,350	3,275	3,255	3,945	4,140	3,920
	Height	mm	3,295	3,295	3,295	3,600	3,600	3,600
Rigging	Operating	ton	21.5	24.7	27.9	33.2	36.0	39.0
	Total Shipping	ton	19.0	22.0	25.0	30.0	31.2	31.8
	Max Shipping	ton	15.2	17.7	19.8	23.4	24.2	26.0
Flue Connection Size	mm	500 x 350	500 x 350	500 x 350	650 x 550	750 x 550	750 x 550	
Clearance For Tube Removal		4,500	5,200	5,700	5,200	5,700	6,200	

**Note:**

- 1.usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard inlet water & outlet water Temperature of Chilled water : 12→7°C
3. Standard inlet water & outlet water Temperature of Hot water : 55.6→60°C
4. Standard inlet water & outlet water Temperature of Cooling water : 32→37°C
5. Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h.°C)
6. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
7. Standard gas pressure : 4,000mmAq
8. Recommend Gas pressure : Low Pressure 200mmAq, Mid. Pressure 900mmAq, High Pressure 4000mmAq

9. Standard low calorific power : 9,360 kcal/Nm<sup>2</sup>
10. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
11. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
12. Total Shipping Weight include weight of the burner & liquid.
13. The specifications are subject to change without prior notice.
14. For other than above this table, contact nearest LG Electronics office

## WCDN(3) Series COP 1.41

Model name		WCDN110	WCDN120	WCDN130	WCDN140	WCDN150	
Cooling capacity	usRT	1,100	1,200	1,300	1,400	1,500	
	kW	3,869	4,220	4,572	4,924	5,275	
Heating capacity	kcal/h	2,530,000	2,783,000	3,036,000	3,289,000	3,542,000	
	kW	2,940	3,234	3,529	3,823	4,117	
Chilled water data	Temperature	°C 12.0 → 7.0					
	Water Flow rate	m <sup>3</sup> /h	665.3	725.8	786.2	846.7	907.2
	Pressure Drop	mAq	5.8	7.4	9.2	7.6	9.3
	Connection size	A(mm)	300	300	300	350	350
		B(inch)	12	12	12	14	14
Hot water data	Temperature	°C 55.6 → 60.0					
	Water Flow rate	m <sup>3</sup> /h	665.3	725.8	786.2	846.7	907.2
	Pressure Drop	mAq	5.8	6.1	9.2	7.6	9.3
	Connection size	A(mm)	300	300	300	350	350
		B(inch)	12	12	12	14	14
Cooling water data	Temperature	°C 32.0 → 37.0					
	Water Flow rate	m <sup>3</sup> /h	1,100	1,200	1,300	1,400	1,500
	Pressure Drop	mAq	7.4	9.4	11.8	9.3	11.3
	Connection size	A(mm)	400	400	400	400	400
		B(inch)	16	16	16	16	16
Fuel (Gas)	Nozzle Size	A(mm)	65 (at 4,000mmAq)				
		B(inch)	2 1/2 (at 4,000mmAq)				
	Cooling	Nm <sup>3</sup> /h	251.8	274.7	297.6	320.5	343.4
	Heating	Nm <sup>3</sup> /h	288.7	317.6	346.5	375.4	404.2
Electrical data	Source	V	3ø 220/380/440V				
	Total Current	A	73.7	73.7	73.7	73.7	73.7
	Wire Size	mm <sup>2</sup>	35	35	35	35	35
	Power	kVA	48.5	48.5	48.5	48.5	48.5
	Absorbent Pump No.1	kW(A)	7.5(25.0)	7.5(25.0)	7.5(25.0)	7.5(25.0)	7.5(25.0)
	Absorbent Pump No.2	kW(A)	5.5(21.0)	5.5(21.0)	5.5(21.0)	5.5(21.0)	5.5(21.0)
	Refrigerant Pump	kW(A)	1.5(3.9)	1.5(3.9)	1.5(3.9)	1.5(3.9)	1.5(3.9)
	Purge Pump	kW(A)	0.75(2.5)	0.75(2.5)	0.75(2.5)	0.75(2.5)	0.75(2.5)
	BuDHer Blower (Gas)	kW(A)	11.0(20.5)	11.0(20.5)	11.0(20.5)	11.0(20.5)	11.0(20.5)
Dimension	Length	mm	6,140	6,800	7,160	6,800	7,160
	Width	mm	4,530	4,500	4,500	4,700	4,850
	Height	mm	3,800	3,800	3,800	4,040	4,040
Rigging	Operating	ton	42.2	46.3	51.0	54.8	59.0
	Total Shipping	ton	38.3	42.0	45.5	49.2	53.0
	Max Shipping	ton	28.0	30.1	32.5	35.0	36.8
Flue Connection Size	mm	750 x 550	850 x 550	850 x 550	850 x 550	850 x 550	
Clearance For Tube Removal		5,700	6,200	6,700	6,200	6,700	

- Note:
- 1.usRT = 3,024kcal/h, 1kW = 860kcal/h
  - 2.Standard inlet water & outlet water Temperature of Chilled water : 12→7°C
  - 3.Standard inlet water & outlet water Temperature of Hot water : 55.6→60°C
  - 4.Standard inlet water & outlet water Temperature of Cooling water : 32→37°C
  - 5.Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h.°C)
  6. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
  7. Standard gas pressure : 4,000mmAq
  - 8.Recommand Gas pressure : Low Pressure 200mmAq, Mid. Pressure 900mmAq, High Pressure 4000mmAq
  - 9.Standard low calorific power : 9,360 kcal/Nm<sup>3</sup>
  - 10.Currents & Electricity Consumptions are based on 3ø 380V 60Hz
  11. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
  - 12.Total Shipping Weight include weight of the burner & liquid.
  - 13.The specifications are subject to change without prior notice.
  - 14.For other than above this table, contact nearest LG Electronics office

## WCDS Series COP 1.12

Model name			WCDS010	WCDS012	WCDS015	WCDS018	WCDS021	WCDS024
Cooling capacity	usRT		100	120	150	180	210	240
	kW		352	422	528	633	739	844
Heating capacity	kcal/h		253,000	303,600	379,500	455,400	531,300	607,200
	kW		294	353	441	529	617	706
Chilled water data	Temperature	°C	12.0 → 7.0					
	Water Flow rate	m <sup>3</sup> /h	60.5	72.6	90.7	108.9	127.0	145.2
	Pressure Drop	mAq	7.2	7.3	8.8	9.1	8.3	8.7
	Connection size	A(mm)	100	100	100	100	125	125
		B(inch)	4	4	4	4	5	5
Hot water data	Temperature	°C	55.8 → 60.0					
	Water Flow rate	m <sup>3</sup> /h	60.5	72.6	90.7	108.9	127.0	145.2
	Pressure Drop	mAq	6.5	6.6	8	8.3	7.5	7.9
	Connection size	A(mm)	100	100	100	100	125	125
		B(inch)	4	4	4	4	5	5
Cooling water data	Temperature	°C	32.0 → 37.0					
	Water Flow rate	m <sup>3</sup> /h	100	120	150	180	210	240
	Pressure Drop	mAq	3.9	4.4	6.5	7.7	5.6	6.2
	Connection size	A(mm)	125	125	125	125	150	150
		B(inch)	5	5	5	5	6	6
Fuel (Gas)	Nozzle Size	A(mm)	40 (at 4,000mmAq)					
		B(inch)	1 1/2 (at 4,000mmAq)					
	Cooling	Nm <sup>3</sup> /h	28.9	34.6	43.3	52.0	60.6	69.3
	Heating	Nm <sup>3</sup> /h	28.9	34.6	43.3	52.0	60.6	69.3
Electrical data	Source	V	3ø 220/380/440V					
	Total Current	A	10.6	10.6	11.6	12.8	12.8	12.8
	Wire Size	mm <sup>2</sup>	4	4	4	4	4	4
	Power	kVA	7.0	7.0	7.6	8.4	8.4	8.4
	Absorbent Pump No.1	kW(A)	1.5(5.43)	1.5(5.43)	2.4(6.4)	2.4(6.4)	2.4(6.4)	2.4(6.4)
	Absorbent Pump No.2	kW(A)	n/a	n/a	n/a	n/a	n/a	n/a
	Refrigerant Pump	kW(A)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.2(1.1)
	Purge Pump	kW(A)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)
	BuDHer Blower (Gas)	kW(A)	0.72(2.1)	0.72(2.1)	0.72(2.1)	1.5(3.3)	1.5(3.3)	1.5(3.3)
Dimension	Length	mm	2,700	2,700	3,720	3,720	3,740	3,740
	Width	mm	1,990	1,990	1,990	2,010	2,190	2,210
	Height	mm	2,030	2,030	2,030	2,030	2,300	2,300
Rigging	Operating	ton	4.8	5.1	6.1	6.7	7.9	8.2
	Total Shipping	ton	4.0	4.2	5.1	5.6	6.4	7.6
	Max Shipping	ton	3.2	3.3	3.9	4.2	4.9	6.0
Flue Connection Size		mm	280x210	280x210	280x210	280x210	310 x 310	310 x 310
Clearance For Tube Removal			2,400	2,400	3,400	3,400	3,400	3,400

**Note:**

- 1.usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard inlet water & outlet water Temperature of Chilled water : 12→7°C
3. Standard inlet water & outlet water Temperature of Hot water : 55.8→60°C
4. Standard inlet water & outlet water Temperature of Cooling water : 32→37.5°C
5. Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h.°C)
6. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 8kg/cm<sup>2</sup>G(785kPa)
7. Standard gas pressure : 4,000mmAq
8. Recommend Gas pressure : Low Pressure 200mmAq, Mid. Pressure 900mmAq, High Pressure 4000mmAq

9. Standard low calorific power : 9,360 kcal/Nm<sup>3</sup>
10. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
11. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
12. Total Shipping Weight include weight of the burner & liquid.
13. The specifications are subject to change without prior notice.
14. For other than above this table, contact nearest LG Electronics office

## WCDS Series COP 1.12

Model name		WCDS028	WCDS032	WCDS036	WCDS040	WCDS045	WCDS050	
Cooling capacity	usRT	280	320	360	400	450	500	
	kW	985	1,125	1,266	1,407	1,583	1,758	
Heating capacity	kcal/h	708,400	809,600	910,800	1,012,000	1,138,500	1,265,000	
	kW	823	941	1,059	1,176	1,323	1,470	
Chilled water data	Temperature	°C 12.0 → 7.0						
	Water Flow rate	m <sup>3</sup> /h	169.3	193.5	217.7	241.9	272.2	302.4
	Pressure Drop	mAq	5.6	6.1	6.4	6.7	5.7	6.1
	Connection size	A(mm)	150	150	150	150	200	200
		B(inch)	6	6	6	6	8	8
Hot water data	Temperature	°C 55.8 → 60.0						
	Water Flow rate	m <sup>3</sup> /h	169.3	193.5	217.7	241.9	272.2	302.4
	Pressure Drop	mAq	5.1	5.5	5.8	6.1	5.2	5.5
	Connection size	A(mm)	150	150	150	150	200	200
		B(inch)	6	6	6	6	8	8
Cooling water data	Temperature	°C 32.0 → 37.0						
	Water Flow rate	m <sup>3</sup> /h	280	320	360	400	450	500
	Pressure Drop	mAq	10.9	12.1	8.7	9.4	10.3	11.2
	Connection size	A(mm)	200	200	200	200	250	250
		B(inch)	8	8	8	8	10	10
Fuel (Gas)	Nozzle Size	A(mm)	40 (at 4,000mmAq)			50 (at 4,000mmAq)		
		B(inch)	1 1/2 (at 4,000mmAq)			2 (at 4,000mmAq)		
	Cooling	Nm <sup>3</sup> /h	80.8	92.4	103.9	115.5	129.9	144.4
	Heating	Nm <sup>3</sup> /h	80.8	92.4	103.9	115.5	129.9	144.4
Electrical data	Source	V	3ø 220/380/440V					
	Total Current	A	24.2	24.2	24.2	27.2	28.6	28.6
	Wire Size	mm <sup>2</sup>	4	4	4	6	6	6
	Power	kVA	15.9	15.9	15.9	17.9	18.8	18.8
	Absorbent Pump No.1	kW(A)	3.4(10.3)	3.4(10.3)	3.4(10.3)	3.4(10.3)	3.7(12.0)	3.7(12.0)
	Absorbent Pump No.2	kW(A)	1.5(5.5)	1.5(5.5)	1.5(5.5)	1.5(5.5)	2.0(5.2)	2.0(5.2)
	Refrigerant Pump	kW(A)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)
	Purge Pump	kW(A)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)
	BuDHer Blower (Gas)	kW(A)	2.2(4.7)	2.2(4.7)	2.2(4.7)	3.7(7.7)	3.7(7.7)	3.7(7.7)
Dimension	Length	mm	4,780	4,780	4,890	4,890	4,870	4,870
	Width	mm	2,170	2,170	2,310	2,350	2,570	2,570
	Height	mm	2,300	2,300	2,540	2,540	2,765	2,765
Rigging	Operating	ton	9.2	9.8	12.3	12.7	16.4	17.4
	Total Shipping	ton	8.1	8.7	10.8	11.1	14.5	15.0
	Max Shipping	ton	6.1	6.6	8.3	8.5	10.2	10.6
Flue Connection Size	mm	310 x 310	310 x 310	360 x 310	360 x 310	410 x 310	410 x 310	
Clearance For Tube Removal		4,500	4,500	4,500	4,500	4,500	4,500	

**Note:**

- 1 usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard inlet water & outlet water Temperature of Chilled water : 12→7 °C
3. Standard inlet water & outlet water Temperature of Hot water : 55.8→60 °C
4. Standard inlet water & outlet water Temperature of Cooling water : 32→37.5 °C
5. Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h.°C)
6. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 8kg/cm<sup>2</sup>G(785kPa)
7. Standard gas pressure : 4,000mmAq
8. Recommend Gas pressure : Low Pressure 200mmAq, Mid. Pressure 900mmAq, High Pressure 4000mmAq

9. Standard low calorific power : 9,360 kcal/Nm<sup>3</sup>
10. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
11. Power supply wire size is based on the due of metal conduit and 40 °C of ambient temperature.
12. Total Shipping Weight include weight of the burner & liquid.
13. The specifications are subject to change without prior notice.
14. For other than above this table, contact nearest LG Electronics office

## WCDS Series COP 1.12

Model name		WCDS056	WCDS063	WCDS070	WCDS080	WCDS090	WCDS100	
Cooling capacity	usRT	560	630	700	800	900	1,000	
	kW	1,969	2,216	2,462	2,813	3,165	3,517	
Heating capacity	kcal/h	1,416,800	1,593,900	1,771,000	2,024,000	2,277,000	2,530,000	
	kW	1,647	1,852	2,058	2,352	2,646	2,940	
Chilled water data	Temperature	°C 12.0 → 7.0						
	Water Flow rate	m <sup>3</sup> /h	338.7	381	423.4	483.8	544.3	604.8
	Pressure Drop	mAq	5.7	7.8	10.3	5.2	7.0	9.2
	Connection size	A(mm)	200	200	200	250	250	250
		B(inch)	8	8	8	10	10	10
Hot water data	Temperature	°C 55.8 → 60.0						
	Water Flow rate	m <sup>3</sup> /h	338.7	381	423.4	483.8	544.3	604.8
	Pressure Drop	mAq	5.2	7.1	9.4	4.7	6.4	8.4
	Connection size	A(mm)	200	200	200	250	250	250
		B(inch)	8	8	8	10	10	10
Cooling water data	Temperature	°C 32.0 → 37.0						
	Water Flow rate	m <sup>3</sup> /h	560	630	700	800	900	1,000
	Pressure Drop	mAq	8	10.6	13.7	8.4	11.1	14.3
	Connection size	A(mm)	300	300	300	350	350	350
		B(inch)	12	12	12	14	14	14
Fuel (Gas)	Nozzle Size	A(mm)	50 (at 4,000mAq)					
		B(inch)	2 (at 4,000mAq)					
	Cooling	Nm <sup>3</sup> /h	161.7	181.9	202.1	231	259.9	288.7
	Heating	Nm <sup>3</sup> /h	161.7	181.9	202.1	231	259.9	288.7
Electrical data	Source	V	3ø 220/380/440V					
	Total Current	A	35.7	35.7	35.7	44.4	49.4	49.4
	Wire Size	mm <sup>2</sup>	16	16	16	16	25	25
	Power	kVA	23.5	23.5	23.5	29.2	32.5	32.5
	Absorbent Pump No.1	kW(A)	6.6(16.2)	6.6(16.2)	6.6(16.2)	5.5(20.0)	7.5(25.0)	7.5(25.0)
	Absorbent Pump No.2	kW(A)	2.0(5.2)	2.0(5.2)	2.0(5.2)	2.2(6.7)	2.2(6.7)	2.2(6.7)
	Refrigerant Pump	kW(A)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)
	Purge Pump	kW(A)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)
	BuDHer Blower (Gas)	kW(A)	5.5(10.6)	5.5(10.6)	5.5(10.6)	7.5(14.0)	7.5(14.0)	7.5(14.0)
Dimension	Length	mm	5,060	5,600	6,100	5,740	6,240	6,760
	Width	mm	3,280	3,280	3,280	3,400	3,400	3,400
	Height	mm	3,066	3,066	3,066	3,600	3,600	3,600
Rigging	Operating	ton	21.2	22.9	24.7	33.5	36.1	38.9
	Total Shipping	ton	19.1	20.6	22.1	29.4	31.8	34.3
	Max Shipping	ton	15.7	16.6	17.8	23.7	25.5	27.4
Flue Connection Size	mm	500 x 350	500 x 350	500 x 350	620 x 400	620 x 400	620 x 400	
Clearance For Tube Removal		4,600	5,200	5,700	5,200	5,700	6,200	

**Note:**

- 1.usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard inlet water & outlet water Temperature of Chilled water : 12→7°C
3. Standard inlet water & outlet water Temperature of Hot water : 55.8→60°C
4. Standard inlet water & outlet water Temperature of Cooling water : 32→37.5°C
5. Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h.°C)
6. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 8kg/cm<sup>2</sup>G(785kPa)
7. Standard gas pressure : 4,000mmAq
8. Recommend Gas pressure : Low Pressure 200mmAq, Mid. Pressure 900mmAq, High Pressure 4000mmAq

9. Standard low calorific power : 9,360 kcal/Nm<sup>3</sup>
10. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
11. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
12. Total Shipping Weight include weight of the burner & liquid.
13. The specifications are subject to change without prior notice.
14. For other than above this table, contact nearest LG Electronics office



## WCDS Series COP 1.12

Model name		WCDS110	WCDS120	WCDS130	WCDS140	WCDS150	
Cooling capacity	usRT	1,100	1,200	1,300	1,400	1,500	
	kW	3,869	4,220	4,572	4,924	5,275	
Heating capacity	kcal/h	2,783,000	3,036,000	3,289,000	3,542,000	3,795,000	
	kW	3,234	3,529	3,823	4,117	4,411	
Chilled water data	Temperature	°C 12.0 → 7.0					
	Water Flow rate	m <sup>3</sup> /h	665.3	725.8	786.2	846.7	907.2
	Pressure Drop	mAq	6.8	8.7	10.8	8.8	10.8
	Connection size	A(mm)	300	300	300	350	350
		B(inch)	12	12	12	14	14
Hot water data	Temperature	°C 55.8 → 60.0					
	Water Flow rate	m <sup>3</sup> /h	665.3	725.8	786.2	846.7	907.2
	Pressure Drop	mAq	6.2	7.9	9.8	8.0	9.8
	Connection size	A(mm)	300	300	300	350	350
		B(inch)	12	12	12	14	14
Cooling water data	Temperature	°C 32.0 → 37.0					
	Water Flow rate	m <sup>3</sup> /h	1,100	1,200	1,300	1,400	1,500
	Pressure Drop	mAq	8.8	10.9	13.4	12.3	14.6
	Connection size	A(mm)	400	400	400	400	400
		B(inch)	16	16	16	16	16
Fuel (Gas)	Nozzle Size	A(mm)	65 (at 4,000mmAq)				
		B(inch)	2 1/2 (at 4,000mmAq)				
	Cooling	Nm <sup>3</sup> /h	317.6	346.5	375.4	404.2	433.1
	Heating	Nm <sup>3</sup> /h	317.6	346.5	375.4	404.2	433.1
Electrical data	Source	V	3ø 220/380/440V				
	Total Current	A	73.7	73.7	73.7	73.7	73.7
	Wire Size	mm <sup>2</sup>	35	35	35	35	35
	Power	kVA	48.5	48.5	48.5	48.5	48.5
	Absorbent Pump No.1	kW(A)	7.5(25.0)	7.5(25.0)	7.5(25.0)	7.5(25.0)	7.5(25.0)
	Absorbent Pump No.2	kW(A)	5.5(21.0)	5.5(21.0)	5.5(21.0)	5.5(21.0)	5.5(21.0)
	Refrigerant Pump	kW(A)	1.5(3.9)	1.5(3.9)	1.5(3.9)	1.5(3.9)	1.5(3.9)
	Purge Pump	kW(A)	0.75(2.5)	0.75(2.5)	0.75(2.5)	0.75(2.5)	0.75(2.5)
BuDHer Blower (Gas)	kW(A)	11.0(20.5)	11.0(20.5)	11.0(20.5)	11.0(20.5)	11.0(20.5)	
Dimension	Length	mm	6,170	6,690	7,190	6,850	7,350
	Width	mm	4,180	4,180	4,180	4,590	4,590
	Height	mm	3,600	3,600	3,600	3,800	3,800
Rigging	Operating	ton	44.3	47.6	50.6	55.5	58.5
	Total Shipping	ton	39.8	42.8	45.5	50.0	52.6
	Max Shipping	ton	31.4	33.6	35.5	38.8	40.6
Flue Connection Size	mm	900 x 400	900 x 400	900 x 400	900 x 400	900 x 400	
Clearance For Tube Removal		5,700	6,200	6,700	6,200	6,700	

- Note:
- 1.usRT = 3,024kcal/h, 1kW = 860kcal/h
  2. Standard inlet water & outlet water Temperature of Chilled water : 12→7 °C
  3. Standard inlet water & outlet water Temperature of Hot water : 55.8→60 °C
  4. Standard inlet water & outlet water Temperature of Cooling water : 32→37.5 °C
  5. Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h.°C)
  6. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 8kg/cm<sup>2</sup>G(785kPa)
  7. Standard gas pressure : 4,000mmAq
  8. Recommend Gas pressure : Low Pressure 200mmAq, Mid. Pressure 900mmAq, High Pressure 4000mmAq
  9. Standard low calorific power : 9,360 kcal/Nm<sup>3</sup>
  10. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
  11. Power supply wire size is based on the due of metal conduit and 40 °C of ambient temperature.
  12. Total Shipping Weight include weight of the burner & liquid.
  13. The specifications are subject to change without prior notice.
  14. For other than above this table, contact nearest LG Electronics office

# Specification Steam fired absorption chiller



## WCSH Series COP 1.51

Model name			WCSH010	WCSH012	WCSH015	WCSH018	WCSH021	WCSH024
Cooling capacity	usRT		100	120	150	180	210	240
	kW		352	422	528	633	739	844
Chilled water data	Temperature	°C	12.0 → 7.0					
	Water Flow rate	m <sup>3</sup> /h	60.5	72.6	90.7	108.9	127	145.2
	Pressure Drop	mAq	6.2	6.3	8.0	8.3	8.0	8.1
	Connection size	A	100	100	100	100	125	125
		B(inch)	4	4	4	4	5	5
Cooling Water Data	Temperature	°C	32.0 → 37.0					
	Water Flow rate	m <sup>3</sup> /h	100	120	150	180	210	240
	Pressure Drop	mAq	3.9	4.2	6.1	6.9	6.1	6.6
	Connection size	A	125	125	125	125	150	150
		B(inch)	5	5	5	5	6	6
Fuel	Steam Flow rate	kg/h	350	420	525	630	735	840
	Steam Inlet Connection	A	50	50	50	50	50	50
		B(inch)	2	2	2	2	2	2
	Drain Outlet Connection	A	25	25	25	25	25	25
		B(inch)	1	1	1	1	1	1
	Steam Control Valve	A	25	25	40	40	40	40
B(inch)		1	1	1.5	1.5	1.5	1.5	
Electrical data	Source	V	3ø 220/380/440V					
	Total Current	A	10.1	10.1	13.5	13.5	13.5	13.5
	Wire Size	mm <sup>2</sup>	4	4	4	4	4	4
	Power	kVA	6.6	6.6	8.9	8.9	8.9	8.9
	Absorbent Pump No.1	kW(A)	1.5(5.43)	1.5(5.43)	2.4(6.4)	2.4(6.4)	2.4(6.4)	2.4(6.4)
	Absorbent Pump No.2	kW(A)	0.4(1.6)	0.4(1.6)	1.2(4.0)	1.2(4.0)	1.2(4.0)	1.2(4.0)
	Refrigerant Pump	kW(A)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.2(1.1)
	Purge Pump	kW(A)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)
Dimension	Length	mm	2,750	2,750	3,720	3,720	3,720	3,720
	Width	mm	1,930	1,930	1,930	1,930	2,000	2,000
	Height	mm	2,065	2,065	2,070	2,110	2,415	2,415
Rigging	Operating	ton	4.5	5.0	6.0	6.5	7.6	8.1
	Total Shipping	ton	4.1	4.6	5.5	5.9	6.8	7.2
	Max Shipping	ton	3.5	3.9	4.6	4.9	5.7	5.9
Clearance For Tube Removal			2,400	2,400	3,400	3,400	3,400	3,400

**Note:**

- 1.usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard inlet water & outlet water Temperature of Chilled water : 12→7°C
3. Standard inlet water & outlet water Temperature of Cooling water : 32→37°C
4. Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h.°C)
5. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
6. Standard Steam Pressure: 8kg/cm<sup>2</sup>G(785kPa)
7. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
8. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
9. Total Shipping Weight include weight of the burner & liquid.
10. The specifications are subject to change without prior notice.
11. For other than above this table, contact nearest LG Electronics office

# Specification Steam fired absorption chiller



## WCSH Series COP 1.51

Model name		WCSH028	WCSH032	WCSH036	WCSH040	WCSH045	WCSH050	
Cooling capacity	usRT	280	320	360	400	450	500	
	kW	985	1,125	1,266	1,407	1,583	1,758	
Chilled water data	Temperature	12.0 → 7.0						
	Water Flow rate	m <sup>3</sup> /h	169.3	193.5	217.7	241.9	272.2	302.4
	Pressure Drop	mAq	5.4	5.5	5.6	5.8	5.1	5.2
	Connection size	A	150	150	150	150	200	200
		B(inch)	6	6	6	6	8	8
Cooling Water Data	Temperature	32.0 → 37.0						
	Water Flow rate	m <sup>3</sup> /h	280	320	360	400	450	500
	Pressure Drop	mAq	8.3	8.8	7.4	8.0	8.8	9.7
	Connection size	A	200	200	200	200	250	250
		B(inch)	8	8	8	8	10	10
Fuel	Steam Flow rate	kg/h	980	1,120	1,260	1,400	1,575	1,750
	Steam Inlet Connection	A	65	65	80	80	80	80
		B(inch)	2.5	2.5	3	3	3	3
	Drain Outlet Connection	A	25	25	40	40	40	40
		B(inch)	1	1	1.5	1.5	1.5	1.5
	Steam Control Valve	A	40	50	50	50	50	50
B(inch)		1.5	2	2	2	2	2	
Electrical data	Source	V	3ø 220/380/440V					
	Total Current	A	19.2	19.2	19.2	19.2	18.9	18.9
	Wire Size	mm <sup>2</sup>	6	6	10	10	10	10
	Power	kVA	12.6	12.6	12.6	12.6	12.4	12.4
	Absorbent Pump No.1	kW(A)	3.4(10.3)	3.4(10.3)	3.4(10.3)	3.4(10.3)	3.4(10.3)	3.4(10.3)
	Absorbent Pump No.2	kW(A)	1.5(5.5)	1.5(5.5)	1.5(5.5)	1.5(5.5)	2.0(5.2)	2.0(5.2)
	Refrigerant Pump	kW(A)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)
	Purge Pump	kW(A)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)
Dimension	Length	mm	4,740	4,740	4,800	4,800	4,830	4,830
	Width	mm	2,070	2,070	2,200	2,200	2,445	2,445
	Height	mm	2,415	2,415	2,590	2,590	2,950	2,950
Rigging	Operating	ton	9.8	10.3	11.9	13.1	15.3	16.8
	Total Shipping	ton	8.7	9.2	10.5	11.6	13.5	14.8
	Max Shipping	ton	7.1	7.6	8.6	9.6	11.3	12.5
Clearance For Tube Removal		mm	4,500	4,500	4,500	4,500	4,500	4,500

**Note:**

1. 1usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard inlet water & outlet water Temperature of Chilled water : 12→7°C
3. Standard inlet water & outlet water Temperature of Cooling water : 32→37°C
4. Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h.°C)
5. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
6. Standard Steam Pressure: 8kg/cm<sup>2</sup>G(785kPa)
7. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
8. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
9. Total Shipping Weight include weight of the burner & liquid.
10. The specifications are subject to change without prior notice.
11. For other than above this table, contact nearest LG Electronics office

# Specification Steam fired absorption chiller



## WCSH Series COP 1.51

Model name			WCSH056	WCSH063	WCSH070	WCSH080	WCSH090	WCSH100
Cooling capacity	usRT		560	630	700	800	900	1,000
	kW		1,969	2,216	2,462	2,813	3,165	3,517
Chilled water data	Temperature	°C	12.0 → 7.0					
	Water Flow rate	m <sup>3</sup> /h	338.7	381	423.4	483.8	544.3	604.8
	Pressure Drop	mAq	5.2	7.2	9.6	4.4	6.0	7.9
	Connection size	A	200	200	200	250	250	250
		B(inch)	8	8	8	10	10	10
Cooling Water Data	Temperature	°C	32.0 → 37.0					
	Water Flow rate	m <sup>3</sup> /h	560	630	700	800	900	1,000
	Pressure Drop	mAq	8.9	11.9	15.3	6.9	9.3	12.3
	Connection size	A	300	300	300	350	350	350
		B(inch)	12	12	12	14	14	14
Fuel	Steam Flow rate	kg/h	1,960	2,205	2,450	2,800	3,150	3,500
	Steam Inlet Connection	A	100	100	100	125	125	125
		B(inch)	4	4	4	5	5	5
	Drain Outlet Connection	A	50	50	50	65	65	65
		B(inch)	2	2	2	2.5	2.5	2.5
	Steam Control Valve	A	65	65	65	65	80	80
B(inch)		2.5	2.5	2.5	2.5	3	3	
Electrical data	Source	V	3ø 220/380/440V					
	Total Current	A	25.1	25.1	25.1	29.1	37.9	37.9
	Wire Size	mm <sup>2</sup>	16	16	16	16	25	35
	Power	kVA	16.5	16.5	16.5	17.5	23.3	23.3
	Absorbent Pump No.1	kW(A)	6.6(16.2)	6.6(16.2)	6.6(16.2)	6.6(16.2)	7.5(25.0)	7.5(25.0)
	Absorbent Pump No.2	kW(A)	2.0(5.2)	2.0(5.2)	2.0(5.2)	2.2(6.7)	2.2(6.7)	2.2(6.7)
	Refrigerant Pump	kW(A)	0.4(1.4)	0.4(1.4)	0.4(1.4)	1.5(3.9)	1.5(3.9)	1.5(3.9)
	Purge Pump	kW(A)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)
Dimension	Length	mm	4,985	5,485	5,985	5,635	6,130	6,590
	Width	mm	2,610	2,610	2,610	3,090	3,090	3,090
	Height	mm	3,300	3,300	3,300	3,550	3,550	3,550
Rigging	Operating	ton	20.2	23.8	26.8	30.9	32.9	35.8
	Total Shipping	ton	17.4	20.7	23.5	26.6	28.3	30.9
	Max Shipping	ton	14.8	17.6	19.9	21.3	22.7	24.1
Clearance For Tube Removal		mm	4,500	5,200	5,700	5,200	5,700	6,200

**Note:**

- 1.usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard inlet water & outlet water Temperature of Chilled water : 12 → 7°C
3. Standard inlet water & outlet water Temperature of Cooling water : 32 → 37°C
4. Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h.°C)
5. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
6. Standard Steam Pressure: 8kg/cm<sup>2</sup>G(785kPa)
7. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
8. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
9. Total Shipping Weight include weight of the burner & liquid.
10. The specifications are subject to change without prior notice.
11. For other than above this table, contact nearest LG Electronics office

# Specification Steam fired absorption chiller



## WCSH Series COP 1.51

Model name		WCSH110	WCSH120	WCSH130	WCSH140	WCSH150	
Cooling capacity	usRT	1,100	1,200	1,300	1,400	1,500	
	kW	3,869	4,220	4,572	4,924	5,275	
Chilled water data	Temperature	°C 12.0 → 7.0					
	Water Flow rate	m <sup>3</sup> /h 665.3	725.8	786.2	846.7	907.2	
	Pressure Drop	mAq 5.8	7.4	9.2	7.6	9.3	
	Connection size	A	300	300	300	350	350
		B(inch)	12	12	12	14	14
Cooling Water Data	Temperature	°C 32.0 → 37.0					
	Water Flow rate	m <sup>3</sup> /h 1,100	1,200	1,300	1,400	1,500	
	Pressure Drop	mAq 9.2	11.7	14.6	11.4	13.9	
	Connection size	A	400	400	400	400	400
		B(inch)	16	16	16	16	16
Fuel	Steam Flow rate	kg/h 3,850	4,200	4,550	4,900	5,250	
	Steam Inlet Connection	A	150	150	150	150	150
		B(inch)	6	6	6	6	6
	Drain Outlet Connection	A	80	80	80	80	80
		B(inch)	3	3	3	3	3
	Steam Control Valve	A	80	80	80	100	100
B(inch)		3	3	3	4	4	
Electrical data	Source	V 3ø 220/380/440V					
	Total Current	A 53.2	53.2	53.2	53.2	53.2	
	Wire Size	mm <sup>2</sup> 35	35	35	35	35	
	Power	kVA 35.0	35.0	35.0	35.0	35.0	
	Absorbent Pump No.1	kW(A) 7.5(25.0)	7.5(25.0)	7.5(25.0)	7.5(25.0)	7.5(25.0)	
	Absorbent Pump No.2	kW(A) 5.5(21.0)	5.5(21.0)	5.5(21.0)	5.5(21.0)	5.5(21.0)	
	Refrigerant Pump	kW(A) 1.5(3.9)	1.5(3.9)	1.5(3.9)	1.5(3.9)	1.5(3.9)	
	Purge Pump	kW(A) 0.75(2.5)	0.75(2.5)	0.75(2.5)	0.75(2.5)	0.75(2.5)	
Dimension	Length	mm 6,140	6,660	7,160	6,640	7,140	
	Width	mm 3,180	3,180	3,180	3,520	3,520	
	Height	mm 3,820	3,820	3,820	3,840	3,840	
Rigging	Operating	ton 38.8	42.2	45.8	49.4	52.8	
	Total Shipping	ton 33.9	36.9	40.2	43.2	46.3	
	Max Shipping	ton 26.0	27.8	29.7	31.5	33.4	
Clearance For Tube Removal	mm	5,700	6,200	6,700	6,200	6,700	

**Note:**

- 1.usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard inlet water & outlet water Temperature of Chilled water : 12→7°C
3. Standard inlet water & outlet water Temperature of Cooling water : 32→37°C
4. Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h.°C)
5. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
6. Standard Steam Pressure: 8kg/cm<sup>2</sup>G(785kPa)
7. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
8. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
9. Total Shipping Weight include weight of the burner & liquid.
10. The specifications are subject to change without prior notice.
11. For other than above this table, contact nearest LG Electronics office

# Specification Steam fired absorption chiller



## WCSS Series COP 1.21

Model name			WCSS010	WCSS012	WCSS015	WCSS018	WCSS021	WCSS024
Cooling capacity	usRT		100	120	150	180	210	240
	kW		352	422	527	633	738	844
Chilled water data	Temperature	°C	12.0 → 7.0					
	Water Flow rate	m <sup>3</sup> /h	60.5	72.6	90.7	108.9	127	145.2
	Pressure Drop	mAq	7.2	7.3	8.8	9.1	8.3	8.7
	Connection size	A	100	100	100	100	125	125
		B(inch)	4	4	4	4	5	5
Cooling Water Data	Temperature	°C	32.0 → 37.5					
	Water Flow rate	m <sup>3</sup> /h	100	120	150	180	210	240
	Pressure Drop	mAq	3.9	4.4	6.5	7.7	5.6	6.2
	Connection size	A	125	125	125	125	150	150
		B(inch)	5	5	5	5	6	6
Fuel	Steam Flow rate	kg/h	440	528	660	792	924	1,060
	Steam Inlet Connection	A	50	50	50	50	65	65
		B(inch)	2	2	2	2	2 1/2	2 1/2
	Drain Outlet Connection	A	25	25	25	25	25	25
		B(inch)	1	1	1	1	1	1
	Steam Control Valve	A	25	40	40	40	40	40
B(inch)		1	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	
Electrical data	Source	V	3ø 220/380/440V					
	Total Current	A	8.5	8.5	9.5	9.5	9.5	9.5
	Wire Size	mm <sup>2</sup>	4	4	4	4	4	4
	Power	kVA	5.6	5.6	6.3	6.3	6.3	6.3
	Absorbent Pump No.1	kW(A)	1.5(5.43)	1.5(5.43)	2.4(6.4)	2.4(6.4)	2.4(6.4)	2.4(6.4)
	Absorbent Pump No.2	kW(A)	n/a	n/a	n/a	n/a	n/a	n/a
	Refrigerant Pump	kW(A)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.2(1.1)
	Purge Pump	kW(A)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)
Dimension	Length	mm	2,650	2,650	3,670	3,670	3,730	3,730
	Width	mm	1,775	1,775	1,775	1,775	1,880	1,880
	Height	mm	2,030	2,030	2,030	2,030	2,300	2,300
Rigging	Operating	ton	4.2	4.4	5.6	5.8	6.8	7.2
	Total Shipping	ton	4.0	4.3	5.4	5.6	6.6	6.8
	Max Shipping	ton	3.4	3.6	4.5	4.6	5.5	5.7
Clearance for tube removal	mm	2,400	2,400	3,400	3,400	3,400	3,400	

**Note:**

- 1.usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard inlet water & outlet water Temperature of Chilled water : 12→7°C
3. Standard inlet water & outlet water Temperature of Cooling water : 32→37.5°C
4. Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h.°C)
5. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 8kg/cm<sup>2</sup>G(981kPa)
6. Standard Steam Pressure: 8kg/cm<sup>2</sup>G(785kPa)
7. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
8. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
9. Total Shipping Weight include weight of the burner & liquid.
10. The specifications are subject to change without prior notice.
11. For other than above this table, contact nearest LG Electronics office

# Specification Steam fired absorption chiller



## WCSS Series COP 1.21

Model name		WCSS028	WCSS032	WCSS036	WCSS040	WCSS045	WCSS050	
Cooling capacity	usRT	280	320	360	400	450	500	
	kW	985	1,125	1,266	1,407	1,582	1,758	
Chilled water data	Temperature	12.0 → 7.0						
	Water Flow rate	m <sup>3</sup> /h	169.3	193.5	217.7	241.9	272.2	302.4
	Pressure Drop	mAq	5.6	6.1	6.4	6.7	5.7	6.1
	Connection size	A	150	150	150	150	200	200
		B(inch)	6	6	6	6	8	8
Cooling Water Data	Temperature	32.0 → 37.5						
	Water Flow rate	m <sup>3</sup> /h	280	320	360	400	450	500
	Pressure Drop	mAq	10.9	12.1	8.7	9.4	10.3	11.2
	Connection size	A	200	200	200	200	250	250
		B(inch)	8	8	8	8	10	10
Fuel	Steam Flow rate	kg/h	1,230	1,410	1,580	1,760	1,980	2,200
	Steam Inlet Connection	A	65	65	80	80	80	80
		B(inch)	2 1/2	2 1/2	3	3	3	3
	Drain Outlet Connection	A	25	25	40	40	40	40
		B(inch)	1	1	1 1/2	1 1/2	1 1/2	1 1/2
	Steam Control Valve	A	50	50	50	50	65	65
B(inch)		2	2	2	2	2 1/2	2 1/2	
Electrical data	Source	V	3ø 220/380/440V					
	Total Current	A	19.2	19.2	19.2	19.2	20.6	20.6
	Wire Size	mm <sup>2</sup>	4	4	4	4	4	4
	Power	kVA	12.6	12.6	12.6	12.6	13.6	13.6
	Absorbent Pump No.1	kW(A)	3.4(10.3)	3.4(10.3)	3.4(10.3)	3.4(10.3)	3.7(12.0)	3.7(12.0)
	Absorbent Pump No.2	kW(A)	1.5(5.5)	1.5(5.5)	1.5(5.5)	1.5(5.5)	2.0(5.2)	2.0(5.2)
	Refrigerant Pump	kW(A)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)
	Purge Pump	kW(A)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)
Dimension	Length	mm	4,750	4,750	4,850	4,850	4,850	4,850
	Width	mm	1,880	1,880	2,110	2,110	2,250	2,250
	Height	mm	2,300	2,300	2,550	2,550	2,780	2,780
Rigging	Operating	ton	8.4	8.8	10.8	11.2	13.2	13.6
	Total Shipping	ton	8.2	8.6	10.6	10.9	12.7	13.0
	Max Shipping	ton	6.8	7.0	8.6	8.9	10.4	10.7
Clearance for tube removal	mm	4,500	4,500	4,500	4,500	4,500	4,500	

Note:

- 1 usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard inlet water & outlet water Temperature of Chilled water : 12→7°C
3. Standard inlet water & outlet water Temperature of Cooling water : 32→37.5°C
4. Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h.°C)
5. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 8kg/cm<sup>2</sup>G(981kPa)
6. Standard Steam Pressure: 8kg/cm<sup>2</sup>G(785kPa)
7. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
8. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
9. Total Shipping Weight include weight of the burner & liquid.
10. The specifications are subject to change without prior notice.
11. For other than above this table, contact nearest LG Electronics office



# Specification Steam fired absorption chiller



## WCSS Series COP 1.21

Model name			WCSS056	WCSS063	WCSS070	WCSS080	WCSS090	WCSS100
Cooling capacity	usRT		560	630	700	800	900	1,000
	kW		1,969	2,215	2,461	2,813	3,165	3,516
Chilled water data	Temperature	°C	12.0 → 7.0					
	Water Flow rate	m <sup>3</sup> /h	338.7	381.0	423.4	483.8	544.3	604.8
	Pressure Drop	mAq	5.7	7.8	10.3	5.2	7.0	9.2
	Connection size	A	200	200	200	250	250	250
		B(inch)	8	8	8	10	10	10
Cooling Water Data	Temperature	°C	32.0 → 37.5					
	Water Flow rate	m <sup>3</sup> /h	560	630	700	800	900	1,000
	Pressure Drop	mAq	8.0	10.6	13.7	8.4	11.1	14.3
	Connection size	A	300	300	300	350	350	350
		B(inch)	12	12	12	14	14	14
Fuel	Steam Flow rate	kg/h	2,470	2,780	3,080	3,520	3,960	4,400
	Steam Inlet Connection	A	100	100	100	125	125	125
		B(inch)	4	4	4	5	5	5
	Drain Outlet Connection	A	50	50	50	65	65	65
		B(inch)	2	2	2	2 1/2	2 1/2	2 1/2
	Steam Control Valve	A	65	65	80	80	80	80
B(inch)		2 1/2	2 1/2	3	3	3	3	
Electrical data	Source	V	3ø 220/380/440V					
	Total Current	A	25.1	25.1	25.1	26.6	35.4	35.4
	Wire Size	mm <sup>2</sup>	6	6	6	10	16	16
	Power	kVA	16.5	16.5	16.5	17.5	23.3	23.3
	Absorbent Pump No.1	kW(A)	6.6(16.2)	6.6(16.2)	6.6(16.2)	6.6(16.2)	7.5(25.0)	7.5(25.0)
	Absorbent Pump No.2	kW(A)	2.0(5.2)	2.0(5.2)	2.0(5.2)	2.2(6.7)	2.2(6.7)	2.2(6.7)
	Refrigerant Pump	kW(A)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)
	Purge Pump	kW(A)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)	0.4(1.45)
Dimension	Length	mm	5,060	5,600	6,100	5,710	6,210	6,730
	Width	mm	2,480	2,480	2,480	2,825	2,825	2,825
	Height	mm	3,000	3,000	3,000	3,400	3,400	3,400
Rigging	Operating	ton	18.2	19.8	21.4	28.2	30.2	32.2
	Total Shipping	ton	17.3	19.2	20.5	25.3	27.3	29.4
	Max Shipping	ton	14.7	15.9	17.1	21.7	23.2	24.9
Clearance for tube removal	mm	4,600	5,200	5,700	5,200	5,700	6,200	

**Note:**

- 1.usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard inlet water & outlet water Temperature of Chilled water : 12→7°C
3. Standard inlet water & outlet water Temperature of Cooling water : 32→37.5°C
4. Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h.°C)
5. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 8kg/cm<sup>2</sup>G(981kPa)
6. Standard Steam Pressure: 8kg/cm<sup>2</sup>G(785kPa)
7. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
8. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
9. Total Shipping Weight include weight of the burner & liquid.
10. The specifications are subject to change without prior notice.
11. For other than above this table, contact nearest LG Electronics office

# Specification Steam fired absorption chiller



## WCSS Series COP 1.21

Model name		WCSS110	WCSS120	WCSS130	WCSS140	WCSS150	
Cooling capacity	usRT	1,100	1,120	1,300	1,400	1,500	
	kW	3,868	3,938	4,571	4,923	5,274	
Chilled water data	Temperature	°C 12.0 → 7.0					
	Water Flow rate	m <sup>3</sup> /h	665.3	725.8	786.2	846.7	907.2
	Pressure Drop	mAq	6.8	8.7	10.8	8.8	10.8
	Connection size	A	300	300	300	350	350
		B(inch)	12	12	12	14	14
Cooling Water Data	Temperature	°C 32.0 → 37.5					
	Water Flow rate	m <sup>3</sup> /h	1,100	1,200	1,300	1,400	1,500
	Pressure Drop	mAq	8.8	10.9	13.4	12.3	14.6
	Connection size	A	400	400	400	400	400
		B(inch)	16	16	16	16	16
Fuel	Steam Flow rate	kg/h	4,840	5,280	5,720	6,160	6,600
	Steam Inlet Connection	A	150	150	150	150	150
		B(inch)	6	6	6	6	6
	Drain Outlet Connection	A	80	80	80	80	80
		B(inch)	3	3	3	3	3
	Steam Control Valve	A	100	100	100	100	100
B(inch)		4	4	4	4	4	
Electrical data	Source	V	3ø 220/380/440V				
	Total Current	A	53.2	53.2	53.2	53.2	53.2
	Wire Size	mm <sup>2</sup>	25	25	25	25	25
	Power	kVA	35.0	35.0	35.0	35.0	35.0
	Absorbent Pump No.1	kW(A)	7.5(25.0)	7.5(25.0)	7.5(25.0)	7.5(25.0)	7.5(25.0)
	Absorbent Pump No.2	kW(A)	5.5(21.0)	5.5(21.0)	5.5(21.0)	5.5(21.0)	5.5(21.0)
	Refrigerant Pump	kW(A)	1.5(3.9)	1.5(3.9)	1.5(3.9)	1.5(3.9)	1.5(3.9)
	Purge Pump	kW(A)	0.75(2.5)	0.75(2.5)	0.75(2.5)	0.75(2.5)	0.75(2.5)
Dimension	Length	mm	6,170	6,690	7,180	6,830	7,330
	Width	mm	3,000	3,000	3,000	3,250	3,250
	Height	mm	3,600	3,600	3,600	3,650	3,650
Rigging	Operating	ton	35.8	38.0	40.2	44.4	46.8
	Total Shipping	ton	33.4	35.7	37.9	41.8	44.3
	Max Shipping	ton	28.1	29.9	31.6	34.9	36.9
Clearance for tube removal		mm	5,800	6,300	6,800	6,300	6,800

**Note:**

- 1.usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard inlet water & outlet water Temperature of Chilled water : 12→7°C
3. Standard inlet water & outlet water Temperature of Cooling water : 32→37.5°C
4. Standard Fouling factor of Chilled & Cooling water : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h.°C)
5. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 8kg/cm<sup>2</sup>G(981kPa)
6. Standard Steam Pressure: 8kg/cm<sup>2</sup>G(785kPa)
7. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
8. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
9. Total Shipping Weight include weight of the burner & liquid.
10. The specifications are subject to change without prior notice.
11. For other than above this table, contact nearest LG Electronics office

# Specification Hot water fired absorption chiller



## WCMH Series (Chilled Water 13°C - 8°C COP 0.83 / 12°C - 7°C COP 0.81)

Model name		WCMH008	WCMH009	WCMH011	WCMH014	WCMH016	WCMH018	WCMH021								
Cooling capacity	USRT	73	75	88	90	107	110	132	135	151	155	176	180	205	210	
	kW	258	264	309	316	378	387	464	474	532	545	618	633	721	738	
Chilled water data	Temperature	°C	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8
	Water flow rate	m <sup>3</sup> /h	44.2	45.4	53.2	54.4	64.7	66.5	79.8	81.6	91.3	93.7	106.4	108.9	124.0	127.0
	Pressure drop	mAq	6.1	6.4	6.2	6.5	8.0	8.4	8.5	8.9	3.6	3.8	4.0	4.2	7.7	8.1
	Connection size	A(mm)	80		80		100		100		125		125		125	
		B(inch)	3		3		4		4		5		5		5	
Cooling Water Data	Temperature	°C	31.0 → 36.5													
	Water flow rate	m <sup>3</sup> /h	89.7	90.9	108.1	109.1	131.5	133.3	162.2	163.7	185.5	187.9	216.2	218.2	251.9	254.6
	Pressure drop	mAq	4.8	4.9	5.2	5.3	11.5	11.8	12.4	12.5	5.9	6.0	6.4	6.5	11.5	11.7
	Connection size	A(mm)	100		100		125		125		150		150		200	
		B(inch)	4		4		5		5		6		6		8	
Hot Water Data	Temperature	°C	95.0 → 72.0													
	Water Flow rate	ton/h	11.8	11.9	14.3	14.3	17.4	17.4	21.4	21.4	24.5	24.6	28.6	28.5	33.3	33.3
	Pressure Drop	mAq	5.1	5.4	5.2	5.5	4.8	5.1	5.2	5.4	5.3	5.5	5.5	5.7	5.5	5.8
	Pressure Drop(Valve)	mAq	2.1	2.3	1.2	1.3	1.8	1.9	2.7	2.9	1.4	1.5	2.0	2.0	2.7	2.8
	Connection size	A(mm)	50		50		65		65		80		80		80	
		B(inch)	2		2		2 1/2		2 1/2		3		3		3	
	Connection size of Control valve	A(mm)	40		50		50		50		65		65		65	
B(inch)		1 1/2		2		2		2		2 1/2		2 1/2		2 1/2		
Electrical data	Source	V	3ø 220/380/440V, 50Hz/60Hz													
	Total current	A	8.2		8.2		10.8		10.8		10.8		10.8		16.0	
	Thickness wire	mm <sup>2</sup>	4.0		4.0		4.0		4.0		4.0		4.0		6.0	
	Power	kVA	5.4		5.4		7.1		7.1		7.1		7.1		10.5	
Pump data	Absorbent pump no.1	kW	1.2		1.2		1.5		1.5		1.5		1.5		2.4	
		A	3.5		3.5		5.5		5.5		5.5		5.5		7.0	
	Absorbent pump no.2	kW	0.4		0.4		0.4		0.4		0.4		0.4		0.4	
		A	1.6		1.6		1.7		1.7		1.7		1.7		5.5	
	Refrigerant pump	kW	0.2		0.2		0.3		0.3		0.3		0.3		0.4	
		A	1.1		1.1		1.6		1.6		1.6		1.6		1.5	
	Purge pump	kW	0.4		0.4		0.4		0.4		0.4		0.4		0.4	
A		1.45		1.45		1.45		1.45		1.45		1.45		1.45		
Dimension	Length	mm	2,790		2,790		3,680		3,680		3,850		3,850		4,870	
	Width	mm	1,760		1,760		1,760		1,760		1,760		1,760		1,760	
	Height	mm	2,450		2,450		2,450		2,450		2,840		2,840		2,840	
Rigging	Operating	ton	3.8		4.0		5.2		5.6		6.6		7.0		8.4	
	Total shipping	ton	2.7		2.8		3.6		3.8		4.5		4.8		5.7	
	Max. shipping	ton	3.3		3.5		4.5		4.7		5.6		6.0		7.1	
Clearance for tube removal	mm	2,400		2,400		3,400		3,400		3,400		3,400		4,500		

**Note:**

1. 1usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
3. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
4. Alternate cooling water temperature range available upon request.
5. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
6. The specifications are subject to change without prior notice.
7. For other than above this table, contact nearest LG Electronics office.

# Specification Hot water fired absorption chiller



## WCMH Series (Chilled Water 13 C-8 CCOP0.83/12 C-7 C COP 0.81)

Model name		WCMH024	WCMH027	WCMH030	WCMH034	WCMH038	WCMH042							
Cooling capacity	USRT	234	240	264	270	293	300	332	340	366	375	410	420	
	kW	824	843	927	949	1,030	1,054	1,167	1,195	1,288	1,318	1,442	1,476	
Chilled water data	Temperature	°C	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8
	Water flow rate	m <sup>3</sup> /h	141.5	145.2	159.7	163.3	177.2	181.4	200.8	205.6	221.4	226.8	248.0	254.0
	Pressure drop	mAq	8.1	8.5	7.9	8.3	8.0	8.4	7.7	8.1	7.6	8.0	7.4	7.8
	Connection size	A(mm)	125		150		150		200		200		200	
		B(inch)	5		6		6		8		8		8	
Cooling Water Data	Temperature	°C	31.0 → 36.5											
	Water flow rate	m <sup>3</sup> /h	287.5	290.9	324.4	327.3	360.0	363.7	407.9	412.2	449.7	454.6	503.7	509.1
	Pressure drop	mAq	11.6	11.9	6.5	6.6	6.8	6.9	6.3	6.4	6.3	6.4	6.0	6.1
	Connection size	A(mm)	200		200		200		250		250		250	
		B(inch)	8		8		8		10		10		10	
Hot Water Data	Temperature	°C	95.0 → 72.0											
	Water Flow rate	ton/h	38.0	38.0	42.9	42.8	47.6	47.5	53.9	53.9	59.4	59.4	66.6	66.5
	Pressure Drop	mAq	5.6	5.8	5.5	5.7	5.5	5.7	5.5	5.8	5.5	5.8	3.1	3.3
	Pressure Drop(Valve)	mAq	1.4	1.4	1.7	1.8	2.2	2.3	2.8	2.9	1.5	1.6	1.9	2.0
	Connection size	A(mm)	3		4		4		4		4		5	
		B(inch)	80		80		80		80		100		100	
	Connection size of Control valve	A(mm)	3		3		3		3		4		4	
B(inch)		3		3		3		3		4		4		
Electrical data	Source	V	3ø 220/380/440V, 50Hz/60Hz											
	Total current	A	16.0		16.0		16.0		18.7		18.7		18.7	
	Thickness wire	mm <sup>2</sup>	6.0		10.0		10.0		10.0		10.0		16.0	
	Power	kVA	10.5		10.5		10.5		12.3		12.3		12.3	
Pump data	Absorbent pump no.1	kW	2.4		2.4		2.4		3.4		3.4		3.4	
		A	7.0		7.0		7.0		10.0		10.0		10.0	
	Absorbent pump no.2	kW	1.5		1.5		1.5		2.0		2.0		2.0	
		A	5.5		5.5		5.5		5.2		5.2		5.2	
	Refrigerant pump	kW	0.4		0.4		0.4		0.4		0.4		0.4	
		A	1.5		1.5		1.5		1.5		1.5		1.5	
Purge pump	kW	0.4		0.4		0.4		0.4		0.4		0.4		
	A	1.45		1.45		1.45		1.45		1.45		1.45		
Dimension	Length	mm	4,870		4,870		4,870		4,930		4,930		5,040	
	Width	mm	1,760		2,000		2,000		2,090		2,090		2,310	
	Height	mm	2,840		2,940		2,940		3,310		3,310		3,570	
Rigging	Operating	ton	8.8		11.2		11.8		14.2		14.8		19.8	
	Total shipping	ton	6.0		7.6		8.1		9.6		10.1		13.4	
	Max. shipping	ton	7.4		9.4		10.0		11.9		12.5		16.6	
Clearance for tube removal	mm	4,500		4,500		4,500		4,500		4,500		4,500		

- Note:
- 1.usRT = 3,024kcal/h, 1kW = 860kcal/h
  - 2.Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
  - 3.Currents & Electricity Consumptions are based on 3ø 380V 60Hz
  - 4.Alternate cooling water temperature range available upon request.
  - 5.Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
  - 6.The specifications are subject to change without prior notice.
  - 7.For other than above this table, contact nearest LG Electronics office.

# Specification Hot water fired absorption chiller



## WCMH Series (Chilled Water 13°C - 8°C COP 0.83 / 12°C - 7°C COP 0.81)

Model name		WCMH047	WCMH053	WCMH060	WCMH068	WCMH075	WCMH083							
Cooling capacity	USRT	459	470	513	525	586	600	659	675	732	750	806	825	
	kW	1,614	1,652	1,803	1,845	2,060	2,109	2,318	2,372	2,573	2,636	2,833	2,900	
Chilled water data	Temperature	°C	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8
	Water flow rate	m <sup>3</sup> /h	277.6	284.3	310.3	317.5	354.4	362.9	398.6	408.2	442.7	453.6	487.5	499.0
	Pressure drop	mAq	10.2	10.7	13.8	14.5	4.5	4.7	6.1	6.4	7.6	8.0	6.3	6.6
	Connection size	A(mm)	200	200	250	250	250	250	250	250	250	250	300	300
		B(inch)	8	8	10	10	10	10	10	10	10	10	12	12
Cooling Water Data	Temperature	°C	31.0 → 36.5											
	Water flow rate	m <sup>3</sup> /h	563.9	569.8	630.3	636.4	720.0	727.3	809.7	818.3	899.3	909.2	990.3	1,000.1
	Pressure drop	mAq	8.0	8.2	10.4	10.6	6.8	6.9	9.0	9.1	11.5	11.7	9.5	9.7
	Connection size	A(mm)	250	250	300	300	300	300	300	300	300	300	350	350
		B(inch)	10	10	12	12	12	12	12	12	12	12	14	14
Hot Water Data	Temperature	°C	95.0 → 72.0											
	Water Flow rate	ton/h	74.5	74.5	83.3	83.2	95.1	95.0	107.0	106.9	118.8	118.8	130.8	130.7
	Pressure Drop	mAq	4.4	4.6	6.0	5.3	2.6	2.8	3.7	3.8	4.9	5.2	3.7	3.9
	Pressure Drop(Valve)	mAq	2.3	2.5	1.4	1.4	1.8	1.9	2.3	2.4	2.8	2.9	1.6	1.7
	Connection size	A(mm)	125	125	150	150	150	150	150	150	150	150	150	150
		B(inch)	5	5	6	6	6	6	6	6	6	6	6	6
	Connection size of Control valve	A(mm)	100	125	125	125	125	125	125	125	125	125	150	150
B(inch)		4	5	5	5	5	5	5	5	5	5	6	6	
Electrical data	Source	V	3ø 220/380/440V, 50Hz/60Hz											
	Total current	A	18.7	26.5	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	38.7	38.7
	Thickness wire	mm <sup>2</sup>	16.0	16.0	16.0	16.0	16.0	16.0	25.0	25.0	25.0	35.0	35.0	35.0
	Power	kVA	12.3	17.4	19.1	19.1	19.1	19.1	19.1	19.1	19.1	19.1	25.5	25.5
Pump data	Absorbent pump no.1	kW	3.4	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
		A	10.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
	Absorbent pump no.2	kW	2.0	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	4.5	4.5
		A	5.2	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	16.0	16.0
	Refrigerant pump	kW	0.4	0.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
		A	1.5	1.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	Purge pump	kW	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.75	0.75
A		1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	2.2	2.2	
Dimension	Length	mm	5,580	6,080	5,680	6,180	6,700	6,700	6,700	6,700	6,700	6,235	6,235	
	Width	mm	2,310	2,310	2,650	2,650	2,650	2,650	2,650	2,650	2,650	4,030	4,030	
	Height	mm	3,570	3,570	3,920	3,920	3,920	3,920	3,920	3,920	3,920	3,180	3,180	
Rigging	Operating	ton	21.4	22.6	28.6	30.6	33.0	35.8	35.8	35.8	35.8	35.8	35.8	
	Total shipping	ton	14.5	15.4	19.4	20.7	22.4	24.2	24.2	24.2	24.2	24.2	24.2	
	Max. shipping	ton	18.0	19.1	24.1	25.7	27.8	30.0	30.0	30.0	30.0	30.0	30.0	
Clearance for tube removal	mm	5,200	5,700	5,200	5,700	5,200	5,700	5,200	5,700	5,200	5,700	5,200	5,700	

**Note:**

1. 1usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
3. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
4. Alternate cooling water temperature range available upon request.
5. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
6. The specifications are subject to change without prior notice.
7. For other than above this table, contact nearest LG Electronics office.

# Specification Hot water fired absorption chiller



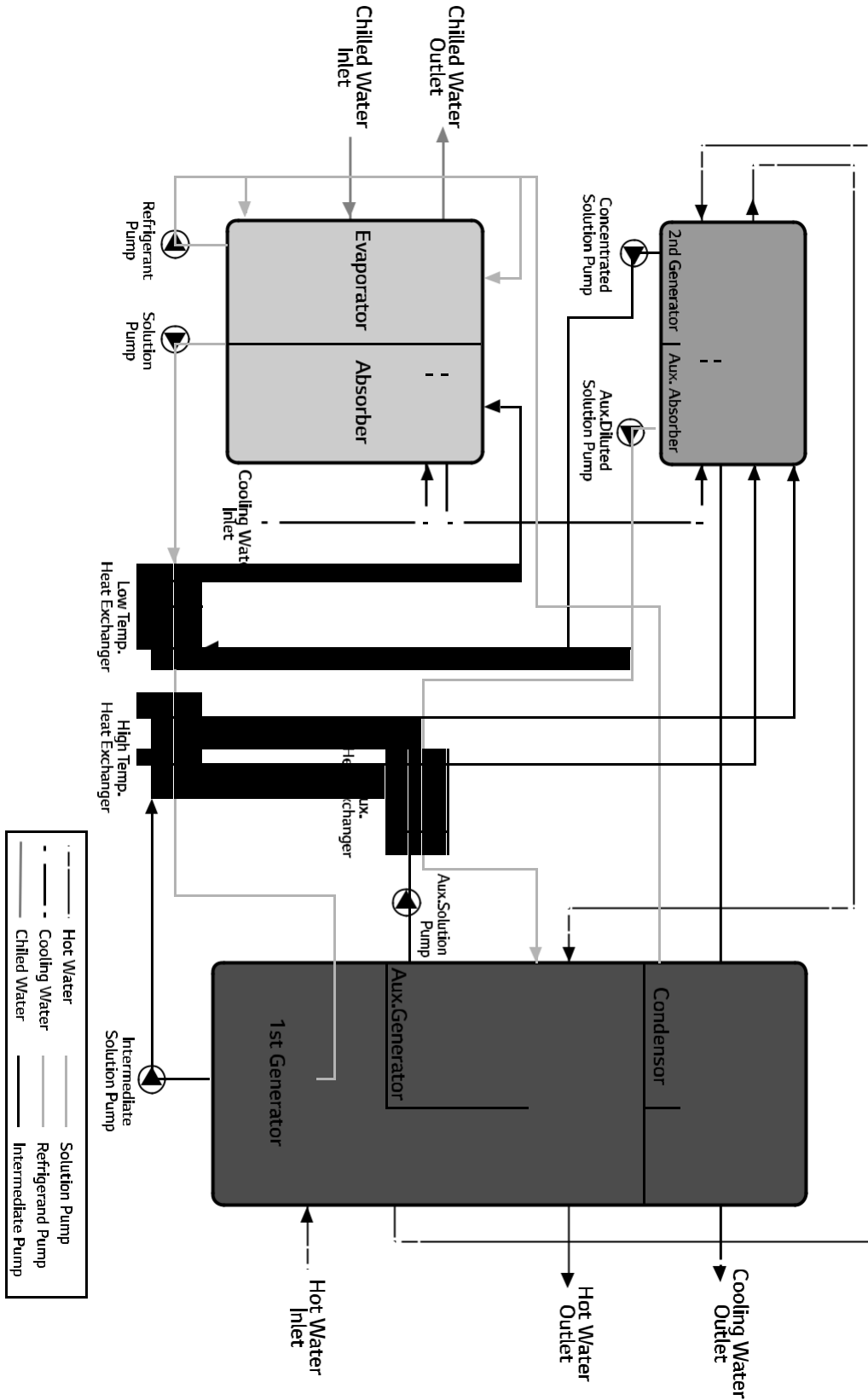
## WCMH Series (Chilled Water 13 C-8 CCOP0.83/12 C-7 C COP 0.81)

Model name		WCMH090	WCMH098	WCMH105	WCMH113	WCMH120	WCMH135							
Cooling capacity	USRT	879	900	952	975	1,026	1,050	1,099	1,125	1,172	1,200	1,319	1,350	
	kW	3,090	3,163	3,344	3,427	3,605	3,690	3,863	3,954	4,120	4,217	4,636	4,745	
Chilled water data	Temperature	°C	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8
	Water flow rate	m <sup>3</sup> /h	531.6	544.3	575.8	589.7	620.5	635.0	664.7	680.4	708.8	725.8	797.7	816.5
	Pressure drop	mAq	8.1	8.5	10.1	10.6	8.5	8.9	10.4	10.9	3.7	3.9	4.9	5.2
	Connection size	A(mm)	300	300	300	300	300	300	300	300	350	350	350	350
		B(inch)	12	12	12	12	12	12	12	12	14	14	14	14
Cooling Water Data	Temperature	°C	31.0 → 36.5											
	Water flow rate	m <sup>3</sup> /h	1,079.9	1,091.0	1,169.6	1,181.9	1,260.5	1,272.9	1,350.2	1,363.8	1,439.9	1,454.7	1,620.5	1,636.5
	Pressure drop	mAq	11.9	12.1	14.6	14.8	11.6	11.8	14.0	14.2	8.2	8.3	10.2	10.4
	Connection size	A(mm)	350	350	350	350	400	400	400	400	450	450	450	450
		B(inch)	14	14	14	14	16	16	16	16	18	18	18	18
Hot Water Data	Temperature	°C	95.0 → 72.0											
	Water Flow rate	ton/h	142.7	142.6	154.5	154.4	166.5	166.3	178.4	178.2	190.2	190.1	214.1	213.9
	Pressure Drop	mAq	4.8	5.0	5.2	5.4	4.6	4.8	5.7	6.0	2.8	2.9	3.7	3.9
	Pressure Drop(Valve)	mAq	2.0	2.0	2.3	2.4	2.7	2.8	1.9	2.0	2.2	2.3	2.7	2.9
	Connection size	A(mm)	150	150	150	150	200	200	200	200	200	200	200	200
		B(inch)	6	6	6	6	8	8	8	8	8	8	8	8
	Connection size of Control valve	A(mm)	150	150	150	150	150	150	150	150	150	150	150	150
B(inch)		6	6	6	6	6	6	6	6	6	6	6	6	
Electrical data	Source	V	3ø 220/380/440V, 50Hz/60Hz											
	Total current	A	40.7	40.7	40.7	40.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7
	Thickness wire	mm <sup>2</sup>	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
	Power	kVA	26.8	26.8	26.8	26.8	32.7	32.7	32.7	32.7	32.7	32.7	32.7	32.7
Pump data	Absorbent pump no.1	kW	4.5	4.5	4.5	4.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	
		A	16.0	16.0	16.0	16.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	
	Absorbent pump no.2	kW	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
		A	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	
	Refrigerant pump	kW	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	
		A	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Purge pump	kW	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75		
	A	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2		
Dimension	Length	mm	6,760	7,260	6,880	7,380	6,880	7,380	6,880	7,380	7,840	8,320		
	Width	mm	4,030	4,030	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500		
	Height	mm	3,180	3,180	3,180	3,180	3,180	3,180	3,180	3,180	3,180	3,180		
Rigging	Operating	ton	37.0	39.4	43.2	46.6	43.2	46.6	46.6	47.6	47.6	52.6		
	Total shipping	ton	25.1	26.7	29.3	29.3	29.3	31.5	31.5	32.2	32.2	35.6		
	Max. shipping	ton	31.1	33.1	36.3	36.3	36.3	39.1	39.1	39.9	39.9	44.1		
Clearance for tube removal	mm	6,200	6,700	6,200	6,700	6,200	6,700	6,200	6,700	7,400	8,000			

- Note:
- 1 usRT = 3,024kcal/h, 1kW = 860kcal/h
  2. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
  3. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
  4. Alternate cooling water temperature range available upon request.
  5. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
  6. The specifications are subject to change without prior notice.
  7. For other than above this table, contact nearest LG Electronics office.

# Cycle diagram WC2H

	Energy	Available	Model Selection			(Example) Application
			Efficiency	Model	Remark	
Chiller	Hot Water	Inlet Temperature Standard 95°C	COP 0.74	WC2H	Low Temperature outlet Standard outlet Temp. : 55°C	Solar system District energy system Cogeneration



# Specification Hot water fired absorption chiller



## WC2H Series (Chilled Water 13°C - 8°C COP 0.74 / 12°C - 7°C COP 0.72)

Model name		WC2H008	WC2H009	WC2H011	WC2H014	WC2H016	WC2H018	WC2H021								
Cooling capacity	USRT	73	75	88	90	107	110	132	135	151	155	176	180	205	210	
	kW	258	264	309	316	378	387	464	474	532	545	618	633	721	738	
Chilled water data	Temperature	°C	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8
	Water flow rate	m <sup>3</sup> /h	44.2	45.4	53.2	54.4	64.7	66.5	79.8	81.6	91.3	93.7	106.4	108.9	124.0	127.0
	Pressure drop	mAq	6.1	6.4	6.2	6.5	8.0	8.4	8.5	8.9	3.6	3.8	4.0	4.2	7.7	8.1
	Connection size	A(mm)	80	80	100	100	125	125	150	150	200	200	250	250	300	300
		B(inch)	3	3	4	4	5	5	6	6	8	8	10	10	12	12
Cooling Water Data	Temperature	°C	31.0 → 36.5													
	Water flow rate	m <sup>3</sup> /h	95.9	97.0	115.6	116.4	140.5	142.2	173.4	174.5	198.3	200.4	231.2	232.7	269.3	271.5
	Pressure drop	mAq	7.8	8.2	8.2	8.6	9.4	9.9	10.1	10.6	6.0	6.3	6.5	6.8	11.5	12.1
	Connection size	A(mm)	100	100	125	125	150	150	200	200	250	250	300	300	350	350
		B(inch)	4	4	5	5	6	6	8	8	10	10	12	12	15	15
Hot Water Data	Entering & Leaving Chilled water	°C	95.0 → 55.0													
	Water Flow rate	ton/h	7.7	7.7	9.2	9.2	11.2	11.2	13.9	13.8	15.9	15.8	18.5	18.4	21.5	21.5
	Pressure Drop	mAq	2.7	2.8	2.8	2.9	5.1	5.4	5.4	5.7	3.9	4.1	4.1	4.3	4.8	5.1
	Pressure Drop(Valve)	mAq	2.2	2.3	1.3	1.4	1.9	2.0	1.8	1.9	2.4	2.5	2.0	2.1	2.8	2.9
	Connection size	A(mm)	50	50	65	65	80	80	100	100	125	125	150	150	200	200
		B(inch)	2	2	2 1/2	2 1/2	3	3	4	4	5	5	6	6	8	8
	Connection size of Control valve	A(mm)	40	40	40	40	50	50	50	50	63	63	63	63	75	75
B(inch)		1 1/2	1 1/2	1 1/2	1 1/2	2	2	2	2	2 1/2	2 1/2	2 1/2	2 1/2	3	3	
Electrical data	Source	V	3ø 220/380/440V, 50Hz/60Hz													
	Total current	A	14.4	14.4	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	19.6
	Thickness wire	mm <sup>2</sup>	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0
	Power	kVA	9.4	9.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	12.9
Pump data	Absorbent pump no.1	kW	1.8	1.8	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	4.0	
		A	7.4	7.4	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	12.7	
	Absorbent pump no.2	kW	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	
		A	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	
	Refrigerant pump	kW	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	
		A	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	
Purge pump	kW	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4		
	A	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45		
Dimension	Length	mm	2,790	2,790	3,680	3,680	3,680	3,680	3,680	3,850	3,850	3,850	3,850	4,870		
	Width	mm	2,180	2,180	2,090	2,090	2,090	2,090	2,210	2,210	2,210	2,210	2,210	2,210		
	Height	mm	2,310	2,310	2,310	2,310	2,310	2,310	2,675	2,675	2,675	2,675	2,675	2,675		
Rigging	Operating	ton	5.2	5.4	6.8	7.4	8.8	9.4	11.0							
	Max. shipping	ton	3.7	3.8	4.9	5.1	6.1	6.5	7.7							
	Total shipping	ton	4.4	4.6	5.9	6.2	7.4	7.8	9.3							
Clearance for tube removal	mm	2,400	2,400	3,400	3,400	3,400	3,400	3,400	4,500							

- Note:
- 1.usRT = 3,024kcal/h, 1kW = 860kcal/h
  - 2.Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
  - 3.Currents & Electricity Consumptions are based on 3ø 380V 60Hz
  - 4.Alternate cooling water temperature range available upon request.
  - 5.Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
  - 6.The specifications are subject to change without prior notice.
  - 7.For other than above this table, contact nearest LG Electronics office.



# Specification Hot water fired absorption chiller



## WC2H Series (Chilled Water 13°C - 8°C COP 0.74 / 12°C - 7°C COP 0.72)

Model name		WC2H024	WC2H027	WC2H030	WC2H034	WC2H038	WC2H042							
Cooling capacity	USRT	234	240	264	270	293	300	332	340	366	375	410	420	
	kW	824	843	927	949	1,030	1,054	1,167	1,195	1,288	1,318	1,442	1,476	
Chilled water data	Temperature	°C	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8
	Water flow rate	m <sup>3</sup> /h	141.5	145.2	159.7	163.3	177.2	181.4	200.8	205.6	221.4	226.8	248.0	254.0
	Pressure drop	mAq	8.1	8.5	7.9	8.3	8.0	8.4	7.7	8.1	7.6	8.0	7.4	7.8
	Connection size	A(mm)	125	150	150	200	200	200						
		B(inch)	5	6	6	8	8	8						
Cooling Water Data	Temperature	°C	31.0 → 36.5											
	Water flow rate	m <sup>3</sup> /h	307.3	310.3	346.8	349.1	384.8	387.8	436.1	439.6	480.7	484.8	538.5	543.0
	Pressure drop	mAq	11.7	12.3	5.5	5.8	5.7	6.0	5.2	5.5	5.2	5.5	5.3	5.6
	Connection size	A(mm)	200	200	200	250	250	250						
		B(inch)	8	8	8	10	10	10						
Hot Water Data	Entering & Leaving Chilled water	°C	95.0 → 55.0											
	Water Flow rate	ton/h	24.6	24.5	27.7	27.6	30.8	30.6	34.9	34.7	38.4	38.3	43.1	42.9
	Pressure Drop	mAq	4.9	5.2	4.5	4.7	4.5	4.7	4.5	4.7	4.5	4.7	2.8	2.9
	Pressure Drop(Valve)	mAq	2.3	2.4	1.8	1.9	2.3	2.4	1.8	1.9	2.2	2.3	1.7	1.8
	Connection size	A(mm)	80	100	100	100	100	100						
		B(inch)	3	4	4	4	4	4						
	Connection size of Control valve	A(mm)	65	65	65	80	80	80						
B(inch)		2 1/2	2 1/2	2 1/2	3	3	3							
Electrical data	Source	V	3ø 220/380/440V, 50Hz/60Hz											
	Total current	A	19.6	19.6	19.6	25.9	25.9	25.9						
	Thickness wire	mm <sup>2</sup>	6.0	10.0	10.0	10.0	10.0	16.0						
	Power	kVA	12.9	12.9	12.9	17.0	17.0	17.0						
Pump data	Absorbent pump no.1	kW	4.0	4.0	4.0	5.8	5.8	5.8						
		A	12.7	12.7	12.7	19.0	19.0	19.0						
	Absorbent pump no.2	kW	0.6	0.6	0.6	0.8	0.8	0.8						
		A	3.4	3.4	3.4	3.4	3.4	3.4						
	Refrigerant pump	kW	0.4	0.4	0.4	0.4	0.4	0.4						
		A	1.5	1.5	1.5	1.5	1.5	1.5						
Purge pump	kW	0.4	0.4	0.4	0.4	0.4	0.4							
	A	1.45	1.45	1.45	1.45	1.45	1.45							
Dimension	Length	mm	4,870	4,870	4,870	4,930	4,930	5,040						
	Width	mm	2,210	2,500	2,500	2,710	2,710	2,940						
	Height	mm	2,675	2,770	2,770	3,120	3,120	3,370						
Rigging	Operating	ton	11.8	14.8	16.0	18.8	19.8	26.2						
	Max. shipping	ton	8.1	10.3	11.0	13.0	13.7	18.2						
	Total shipping	ton	9.8	12.4	13.3	15.7	16.5	21.9						
Clearance for tube removal	mm	4,500	4,500	4,500	4,500	4,500	4,500							

**Note:**

1. 1usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
3. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
4. Alternate cooling water temperature range available upon request.
5. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
6. The specifications are subject to change without prior notice.
7. For other than above this table, contact nearest LG Electronics office.

# Specification Hot water fired absorption chiller



## WC2H Series (Chilled Water 13°C - 8°C COP 0.74 / 12°C - 7°C COP 0.72)

Model name		WC2H047	WC2H053	WC2H060	WC2H068	WC2H075	WC2H083							
Cooling capacity	USRT	459	470	513	525	586	600	659	675	732	750	806	825	
	kW	1,614	1,652	1,803	1,845	2,060	2,109	2,318	2,372	2,573	2,636	2,833	2,900	
Chilled water data	Temperature	°C	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8
	Water flow rate	m <sup>3</sup> /h	277.6	284.3	310.3	317.5	354.4	362.9	398.6	408.2	442.7	453.6	487.5	499.0
	Pressure drop	mAq	10.2	10.7	13.8	14.5	4.5	4.7	6.1	6.4	7.6	8.0	6.3	6.6
	Connection size	A(mm)	200		200		250		250		250		300	
		B(inch)	8		8		10		10		10		12	
Cooling Water Data	Temperature	°C	31.0 → 36.5											
	Water flow rate	m <sup>3</sup> /h	602.9	607.6	673.8	678.7	769.7	775.7	865.6	872.7	961.4	969.6	1058.6	1066.6
	Pressure drop	mAq	7.0	7.4	9.1	9.6	6.5	6.8	8.6	9.0	10.9	11.5	8.9	9.4
	Connection size	A(mm)	250		250		300		300		300		350	
		B(inch)	10		10		12		12		12		14	
Hot Water Data	Entering & Leaving Chilled water	°C	95.0 → 55.0											
	Water Flow rate	ton/h	48.2	48.0	53.9	53.6	61.5	61.3	69.2	69.0	76.9	76.6	84.6	84.3
	Pressure Drop	mAq	3.8	4.0	5.1	5.4	3.5	3.7	4.8	5.1	5.5	5.8	3.8	4.0
	Pressure Drop(Valve)	mAq	2.2	2.3	2.8	2.9	1.6	1.7	2.0	2.1	2.5	2.6	1.4	1.5
	Connection size	A(mm)	100		100		125		125		125		125	
		B(inch)	4		4		5		5		5		5	
	Connection size of Control valve	A(mm)	80		80		100		100		100		125	
		B(inch)	3		3		4		4		4		5	
Electrical data	Source	V	3ø 220/380/440V, 50Hz/60Hz											
	Total current	A	25.9		43.3		45.8		45.8		45.8		52.7	
	Thickness wire	mm <sup>2</sup>	16.0		16.0		16.0		25.0		35.0		35.0	
	Power	kVA	17.0		28.5		30.1		30.1		30.1		34.7	
Pump data	Absorbent pump no.1	kW	5.8		8.9		8.9		8.9		8.9		8.9	
		A	19.0		27.0		27.0		27.0		27.0		30.0	
	Absorbent pump no.2	kW	0.8		4.0		4.0		4.0		4.0		4.8	
		A	3.4		12.8		12.8		12.8		12.8		14.0	
	Refrigerant pump	kW	0.4		0.4		1.5		1.5		1.5		1.8	
		A	1.5		1.5		4.0		4.0		4.0		6.0	
Purge pump	kW	0.4		0.4		0.4		0.4		0.4		0.75		
	A	1.45		1.45		1.45		1.45		1.45		2.2		
Dimension	Length	mm	5,580		6,080		5,680		6,180		6,700		6,270	
	Width	mm	2,940		2,940		3,400		3,400		3,400		4,070	
	Height	mm	3,370		3,370		3,725		3,725		3,725		3,890	
Rigging	Operating	ton	28.4		30.2		36.4		39.6		42.6		47.4	
	Max. shipping	ton	19.7		20.9		26.3		28.1		30.4		32.8	
	Total shipping	ton	23.7		25.2		31.7		33.8		36.6		39.5	
Clearance for tube removal	mm	5,200		5,700		5,200		5,700		6,200		5,700		

- Note:
1. 1usRT = 3,024kcal/h, 1kW = 860kcal/h
  2. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
  3. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
  4. Alternate cooling water temperature range available upon request.
  5. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
  6. The specifications are subject to change without prior notice.
  7. For other than above this table, contact nearest LG Electronics office.

# Specification Hot water fired absorption chiller



## WC2H Series (Chilled Water 13°C - 8°C COP 0.74 / 12°C - 7°C COP 0.72)

Model name		WC2H090	WC2H098	WC2H105	WC2H113	WC2H120	WC2H135							
Cooling capacity	USRT	879	900	952	975	1,026	1,050	1,099	1,125	1,172	1,200	1,319	1,350	
	kW	3,090	3,163	33,44	3,427	3,605	3,690	3,863	3,954	4,120	4,217	4,636	4,745	
Chilled water data	Temperature	°C	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8
	Water flow rate	m <sup>3</sup> /h	531.6	544.3	575.8	589.7	620.5	635.0	664.7	680.4	708.8	725.8	797.7	816.5
	Pressure drop	mAq	8.1	8.5	10.1	10.6	8.5	8.9	10.4	10.9	3.7	3.9	4.9	5.2
	Connection size	A(mm)	300	300	300	300	300	300	300	300	350	350	350	350
		B(inch)	12	12	12	12	12	12	12	12	14	14	14	14
Cooling Water Data	Temperature	°C	31.0 → 36.5											
	Water flow rate	m <sup>3</sup> /h	1154.5	1163.5	1250.4	1260.5	1347.6	1357.5	1443.5	1454.4	1539.4	1551.4	1732.4	1745.3
	Pressure drop	mAq	11.2	11.8	13.7	14.4	10.8	11.4	13.0	13.7	13.7	14.4	17.6	18.5
	Connection size	A(mm)	350	350	350	350	400	400	400	400	450	450	450	450
		B(inch)	14	14	14	14	16	16	16	16	18	18	18	18
Hot Water Data	Entering & Leaving Chilled water	°C	95.0 → 55.0											
	Water Flow rate	ton/h	92.3	91.9	100.0	99.6	107.7	107.3	115.4	114.9	123.1	122.6	138.5	137.9
	Pressure Drop	mAq	4.9	5.2	5.3	5.6	4.8	5.0	5.0	5.3	4.3	4.5	5.7	6.0
	Pressure Drop(Valve)	mAq	1.6	1.7	1.9	2.0	2.3	2.4	2.6	2.7	1.4	1.5	1.8	1.9
	Connection size	A(mm)	125	125	125	125	150	150	150	150	150	150	150	150
		B(inch)	5	5	5	5	6	6	6	6	6	6	6	6
	Connection size of Control valve	A(mm)	125	125	125	125	125	125	125	125	150	150	150	150
		B(inch)	5	5	5	5	5	5	5	5	6	6	6	6
Electrical data	Source	V	3ø 220/380/440V, 50Hz/60Hz											
	Total current	A	52.7	52.7	52.7	52.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7
	Thickness wire	mm <sup>2</sup>	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
	Power	kVA	34.7	34.7	34.7	34.7	43.2	43.2	43.2	43.2	43.2	43.2	43.2	43.2
Pump data	Absorbent pump no.1	kW	8.9	8.9	8.9	8.9	12.2	12.2	12.2	12.2	12.2	12.2	12.2	
		A	30.0	30.0	30.0	30.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	
	Absorbent pump no.2	kW	4.8	4.8	4.8	4.8	4.4	4.4	4.4	4.4	4.4	4.4	4.4	
		A	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	
	Refrigerant pump	kW	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	
		A	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
	Purge pump	kW	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	
		A	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	
Dimension	Length	mm	6,795	6,795	6,795	6,795	6,880	6,880	6,880	6,880	6,880	6,880	6,880	
	Width	mm	4,070	4,070	4,070	4,070	4,500	4,500	4,500	4,500	4,500	4,500	4,500	
	Height	mm	3,890	3,890	3,890	3,890	4,080	4,080	4,080	4,080	4,080	4,080	4,080	
Rigging	Operating	ton	49.4	49.4	49.4	49.4	58.4	58.4	58.4	58.4	58.4	64.8	64.8	
	Max. shipping	ton	34.0	34.0	34.0	34.0	39.7	39.7	39.7	39.7	39.7	43.7	43.7	
	Total shipping	ton	41.0	41.0	41.0	41.0	47.8	47.8	47.8	47.8	47.8	52.6	52.6	
Clearance for tube removal	mm	6,200	6,200	6,200	6,200	6,200	6,200	6,200	6,200	6,200	6,200	6,200	6,200	

**Note:**

1. 1usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
3. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
4. Alternate cooling water temperature range available upon request.
5. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
6. The specifications are subject to change without prior notice.
7. For other than above this table, contact nearest LG Electronics office.

# Specification Hot water fired absorption chiller



## WC2N Series (Chilled Water 13°C - 8°C COP 0.67 / 12°C - 7°C COP 0.65)

Model name		WC2N008	WC2N009	WC2N011	WC2N014	WC2N016	WC2N018	WC2N021								
Cooling capacity	USRT	73	75	88	90	107	110	132	135	151	155	176	180	205	210	
	kW	258	264	309	316	378	387	464	474	532	545	618	633	721	738	
Chilled water data	Temperature	°C	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8
	Water flow rate	m <sup>3</sup> /h	44.2	45.4	53.2	54.4	64.7	66.5	79.8	81.6	91.3	93.7	106.4	108.9	124.0	127.0
	Pressure drop	mAq	6.1	6.4	6.2	6.5	8.0	8.4	8.5	8.9	3.6	3.8	4.0	4.2	7.7	8.1
	Connection size	A(mm)	80	80	100	100	125	125	150	150	200	200	250	250	315	315
		B(inch)	3	3	4	4	5	5	6	6	8	8	10	10	12.5	12.5
Cooling Water Data	Temperature	°C	31.0 → 36.5													
	Water flow rate	m <sup>3</sup> /h	101.9	102.8	122.8	123.3	149.3	150.7	184.2	185.0	210.7	212.4	245.6	246.7	286.1	287.8
	Pressure drop	mAq	8.0	8.4	8.4	8.8	8.8	9.3	9.5	10.0	5.9	6.2	6.4	6.7	11.0	11.6
	Connection size	A(mm)	100	100	125	125	150	150	200	200	250	250	315	315	400	400
		B(inch)	4	4	5	5	6	6	8	8	10	10	12.5	12.5	16	16
Hot Water Data	Entering & Leaving Chilled water	°C	95.0 → 55.0													
	Water Flow rate	ton/h	8.5	8.5	10.2	10.2	12.4	12.4	15.4	15.2	17.6	17.5	20.5	20.3	23.8	23.7
	Pressure Drop	mAq	2.8	2.9	2.9	3.0	5.6	5.9	4.2	4.4	4.8	5.1	5.0	5.3	5.0	5.3
	Pressure Drop(Valve)	mAq	1.0	1.1	1.6	1.7	2.4	2.5	2.2	2.3	1.8	1.9	2.5	2.6	2.1	2.2
	Connection size	A(mm)	50	50	65	65	80	80	100	100	125	125	150	150	200	200
		B(inch)	2	2	2 1/2	2 1/2	3	3	4	4	5	5	6	6	8	8
	Connection size of Control valve	A(mm)	40	40	40	40	50	50	50	50	65	65	65	65	80	80
B(inch)		1 1/2	1 1/2	1 1/2	1 1/2	2	2	2	2	2 1/2	2 1/2	2 1/2	2 1/2	3	3	
Electrical data	Source	V	3ø 220/380/440V, 50Hz/60Hz													
	Total current	A	14.2	14.2	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	21.9	
	Thickness wire	mm <sup>2</sup>	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0	
	Power	kVA	9.3	9.3	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	14.4	
Pump data	Absorbent pump no.1	kW	2.0	2.0	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	4.8		
		A	7.2	7.2	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	15.0		
	Absorbent pump no.2	kW	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6		
		A	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4		
	Refrigerant pump	kW	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	
		A	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	
Purge pump	kW	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4		
	A	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45		
Dimension	Length	mm	2,790	2,790	3,680	3,680	3,680	3,680	3,680	3,850	3,850	3,850	3,850	4,870		
	Width	mm	2,180	2,180	2,090	2,090	2,090	2,090	2,090	2,210	2,210	2,210	2,210	2,210		
	Height	mm	2,310	2,310	2,310	2,310	2,310	2,310	2,310	2,675	2,675	2,675	2,675	2,675		
Rigging	Operating	ton	5.2	5.4	6.8	7.4	8.8	9.4	11.0							
	Max. shipping	ton	3.7	3.8	4.9	5.1	6.1	6.5	7.7							
	Total shipping	ton	4.4	4.6	5.9	6.2	7.4	7.8	9.3							
Clearance for tube removal	mm	2,400	2,400	3,400	3,400	3,400	3,400	3,400	4,500							

- Note:
- 1.usRT = 3,024kcal/h, 1kW = 860kcal/h
  - 2.Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
  - 3.Currents & Electricity Consumptions are based on 3ø 380V 60Hz
  - 4.Alternate cooling water temperature range available upon request.
  - 5.Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
  - 6.The specifications are subject to change without prior notice.
  - 7.For other than above this table, contact nearest LG Electronics office.

# Specification Hot water fired absorption chiller



## WC2N Series (Chilled Water 13°C - 8°C COP 0.67 / 12°C - 7°C COP 0.65)

Model name		WC2N024	WC2N027	WC2N030	WC2N034	WC2N038	WC2N042							
Cooling capacity	USRT	234	240	264	270	293	300	332	340	366	375	410	420	
	kW	824	843	927	949	1,030	1,054	1,167	1,195	1,288	1,318	1,442	1,476	
Chilled water data	Temperature	°C	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8
	Water flow rate	m <sup>3</sup> /h	141.5	145.2	159.7	163.3	177.2	181.4	200.8	205.6	221.4	226.8	248.0	254.0
	Pressure drop	mAq	8.1	8.5	7.9	8.3	8.0	8.4	7.7	8.1	7.6	8.0	7.4	7.8
	Connection size	A(mm)	125	150	150	200	200	200						
		B(inch)	5	6	6	8	8	8						
Cooling Water Data	Temperature	°C	31.0 → 36.5											
	Water flow rate	m <sup>3</sup> /h	326.6	328.9	368.5	370.0	408.9	411.1	463.4	466.0	510.8	513.9	572.2	575.6
	Pressure drop	mAq	11.2	11.8	5.5	5.8	5.7	6.0	5.1	5.4	5.2	5.5	5.3	5.6
	Connection size	A(mm)	200	200	200	250	250	250						
		B(inch)	8	8	8	10	10	10						
Hot Water Data	Temperature	°C	95.0 → 55.0											
	Water Flow rate	ton/h	27.2	27.1	30.7	30.5	34.1	33.9	38.6	38.4	42.6	42.3	47.7	47.4
	Pressure Drop	mAq	5.1	5.4	5.1	5.4	5.2	5.5	5.2	5.5	5.1	5.4	2.9	3.0
	Pressure Drop(Valve)	mAq	1.7	1.8	2.2	2.3	1.7	1.8	2.2	2.3	1.7	1.8	2.1	2.2
	Connection size	A(mm)	80	100	100	100	100	100						
		B(inch)	3	4	4	4	4	4						
	Connection size of Control valve	A(mm)	65	65	80	80	80	80						
B(inch)		2 1/2	2 1/2	3	3	3	3							
Electrical data	Source	V	3ø 220/380/440V, 50Hz/60Hz											
	Total current	A	21.9	21.9	21.9	27.9	27.9	27.9						
	Thickness wire	mm <sup>2</sup>	6.0	10.0	10.0	10.0	10.0	16.0						
	Power	kVA	14.4	14.4	14.4	18.3	18.3	18.3						
Pump data	Absorbent pump no.1	kW	4.8	4.8	4.8	6.5	6.5	6.5						
		A	15.0	15.0	15.0	21.0	21.0	21.0						
	Absorbent pump no.2	kW	0.6	0.6	0.6	0.8	0.8	0.8						
		A	3.4	3.4	3.4	3.4	3.4	3.4						
	Refrigerant pump	kW	0.4	0.4	0.4	0.4	0.4	0.4						
		A	1.5	1.5	1.5	1.5	1.5	1.5						
Purge pump	kW	0.4	0.4	0.4	0.4	0.4	0.4							
	A	1.45	1.45	1.45	1.45	1.45	1.45							
Dimension	Length	mm	4,870	4,870	4,870	4,930	4,930	5,040						
	Width	mm	2,210	2,500	2,500	2,710	2,710	2,940						
	Height	mm	2,675	2,770	2,770	3,120	3,120	3,370						
Rigging	Operating	ton	11.8	14.8	16.0	18.8	19.8	26.2						
	Max. shipping	ton	8.1	10.3	11.0	13.0	13.7	18.2						
	Total shipping	ton	9.8	12.4	13.3	15.7	16.5	21.9						
Clearance for tube removal	mm	4,500	4,500	4,500	4,500	4,500	4,500							

**Note:**

1. 1usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
3. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
4. Alternate cooling water temperature range available upon request.
5. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
6. The specifications are subject to change without prior notice.
7. For other than above this table, contact nearest LG Electronics office.

# Specification Hot water fired absorption chiller



## WC2N Series (Chilled Water 13°C - 8°C COP 0.67 / 12°C - 7°C COP 0.65)

Model name		WC2N047	WC2N053	WC2N060	WC2N068	WC2N075	WC2N083							
Cooling capacity	USRT	459	470	513	525	586	600	659	675	732	750	806	825	
	kW	1,614	1,652	1,803	1,845	2,060	2,109	2,318	2,372	2,573	2,636	2,833	2,900	
Chilled water data	Temperature	°C	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8
	Water flow rate	m <sup>3</sup> /h	277.6	284.3	310.3	317.5	354.4	362.9	398.6	408.2	442.7	453.6	487.5	499.0
	Pressure drop	mAq	10.2	10.7	13.8	14.5	4.5	4.7	6.1	6.4	7.6	8.0	6.3	6.6
	Connection size	A(mm)	200	200	250	250	250	250	250	250	250	250	300	300
		B(inch)	8	8	10	10	10	10	10	10	10	10	12	12
Cooling Water Data	Temperature	°C	31.0 → 36.5											
	Water flow rate	m <sup>3</sup> /h	640.6	644.1	716.0	719.5	817.9	822.3	919.8	925.0	1021.6	1027.8	1124.9	1130.6
	Pressure drop	mAq	7.0	7.4	9.1	9.6	6.6	6.9	8.6	9.0	10.9	11.5	8.9	9.4
	Connection size	A(mm)	250	250	300	300	300	300	300	300	300	300	350	350
		B(inch)	10	10	12	12	12	12	12	12	12	12	14	14
Hot Water Data	Entering & Leaving Chilled water	°C	95.0 → 55.0											
	Water Flow rate	ton/h	53.4	53.0	59.7	59.2	68.2	67.7	76.6	76.2	85.1	84.6	93.7	93.1
	Pressure Drop	mAq	4.0	4.2	5.3	5.6	3.6	3.8	5.0	5.3	4.8	5.0	3.8	4.0
	Pressure Drop(Valve)	mAq	1.1	1.2	1.5	1.6	1.9	2.0	2.5	2.6	1.4	1.5	1.7	1.8
	Connection size	A(mm)	100	100	125	125	125	125	125	125	125	125	125	125
		B(inch)	4	4	5	5	5	5	5	5	5	5	5	5
	Connection size of Control valve	A(mm)	100	100	100	100	100	100	100	100	125	125	125	125
		B(inch)	4	4	4	4	4	4	4	4	5	5	5	5
Electrical data	Source	V	3ø 220/380/440V, 50Hz/60Hz											
	Total current	A	27.9	43.3	45.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8	52.7	52.7
	Thickness wire	mm <sup>2</sup>	16.0	16.0	16.0	16.0	25.0	25.0	25.0	25.0	35.0	35.0	35.0	35.0
	Power	kVA	18.3	28.5	30.1	30.1	30.1	30.1	30.1	30.1	30.1	30.1	34.7	34.7
Pump data	Absorbent pump no.1	kW	6.5	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	
		A	21.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	30.0	
	Absorbent pump no.2	kW	0.8	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.8	
		A	3.4	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	14.0	
	Refrigerant pump	kW	0.4	0.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.8	
		A	1.5	1.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0	
Purge pump	kW	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.75		
	A	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	2.2		
Dimension	Length	mm	5,580	6,080	5,680	5,680	6,180	6,180	6,180	6,700	6,700	6,270		
	Width	mm	2,940	2,940	3,400	3,400	3,400	3,400	3,400	3,400	3,400	4,070		
	Height	mm	3,370	3,370	3,725	3,725	3,725	3,725	3,725	3,725	3,725	3,890		
Rigging	Operating	ton	28.4	30.2	36.4	36.4	39.6	39.6	39.6	42.6	42.6	47.4		
	Max. shipping	ton	19.7	20.9	26.3	26.3	28.1	28.1	28.1	30.4	30.4	32.8		
	Total shipping	ton	23.7	25.2	31.7	31.7	33.8	33.8	33.8	36.6	36.6	39.5		
Clearance for tube removal	mm	5,200	5,700	5,200	5,200	5,700	5,700	5,700	6,200	6,200	5,700			

- Note:
- 1 usRT = 3,024kcal/h, 1kW = 860kcal/h
  2. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
  3. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
  4. Alternate cooling water temperature range available upon request.
  5. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
  6. The specifications are subject to change without prior notice.
  7. For other than above this table, contact nearest LG Electronics office.

# Specification Hot water fired absorption chiller



## WC2N Series (Chilled Water 13°C - 8°C COP 0.67 / 12°C - 7°C COP 0.65)

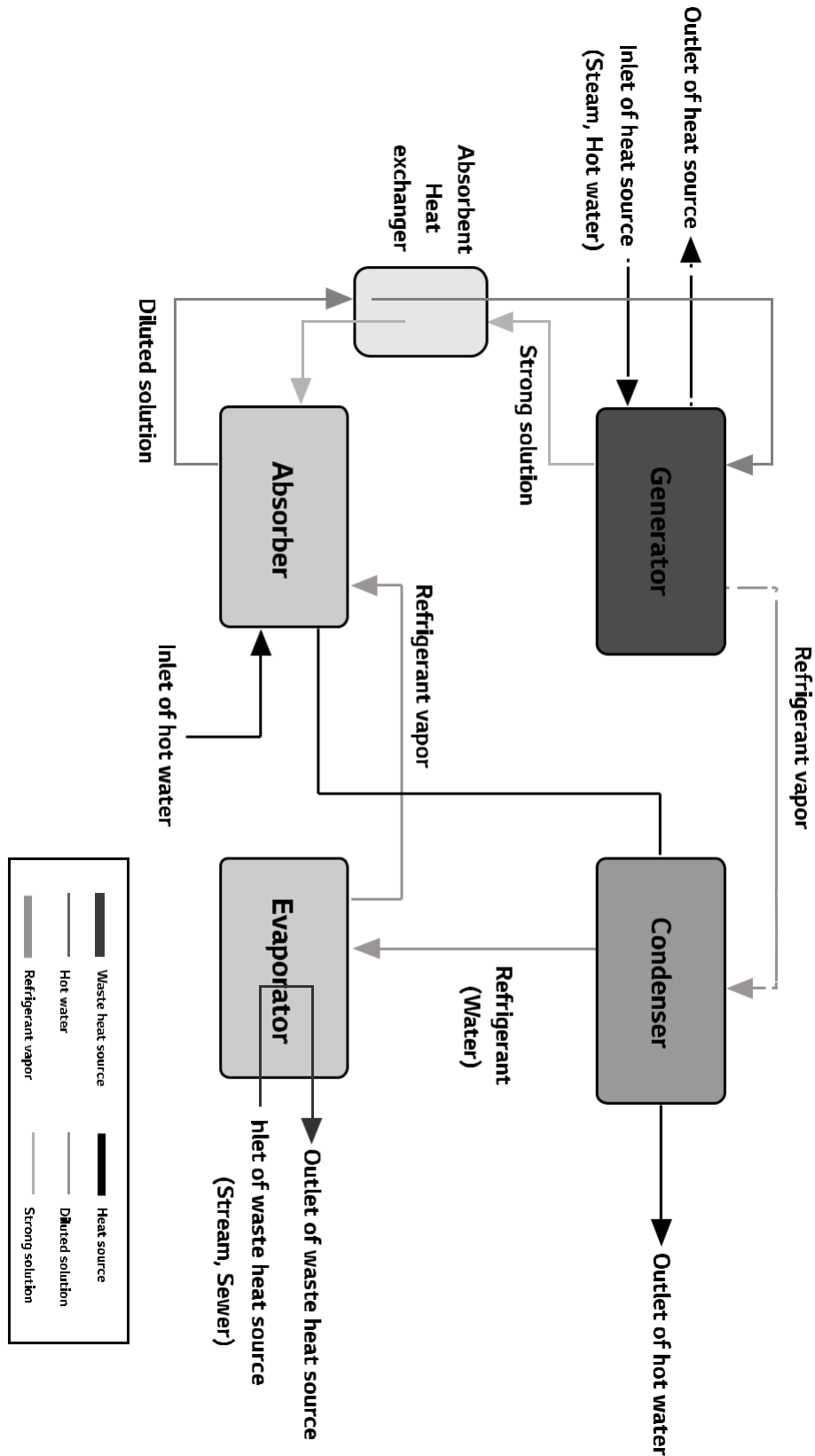
Model name		WC2N090	WC2N098	WC2N105	WC2N113	WC2N120	WC2N135							
Cooling capacity	USRT	879	900	952	975	1,026	1,050	1,099	1,125	1,172	1,200	1,319	1,350	
	kW	3,090	3,163	3,344	3,427	3,605	3,690	3,863	3,954	4,120	4,217	4,636	4,745	
Chilled water data	Temperature	°C	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8	12-7	13-8
	Water flow rate	m <sup>3</sup> /h	531.6	544.3	575.8	589.7	620.5	635.0	664.7	680.4	708.8	725.8	797.7	816.5
	Pressure drop	mAq	8.1	8.5	10.1	10.6	8.5	8.9	10.4	10.9	3.7	3.9	4.9	5.2
	Connection size	A(mm)	300	300	300	300	300	300	300	300	350	350	350	350
		B(inch)	12	12	12	12	12	12	12	12	14	14	14	14
Cooling Water Data	Temperature	°C	31.0 → 36.5											
	Water flow rate	m <sup>3</sup> /h	1226.8	1233.4	1328.7	1336.2	1432.0	1439.0	1533.9	1541.7	1635.8	1644.5	1840.9	1850.1
	Pressure drop	mAq	11.1	11.7	13.5	14.2	10.6	11.2	12.8	13.5	13.4	14.1	17.2	18.1
	Connection size	A(mm)	350	350	350	350	400	400	400	400	450	450	450	450
		B(inch)	14	14	14	14	16	16	16	16	18	18	18	18
Hot Water Data	Entering & Leaving Chilled water	°C	95.0 → 55.0											
	Water Flow rate	ton/h	102.2	101.6	110.7	110.0	119.3	118.5	127.8	126.9	136.3	135.4	153.4	152.3
	Pressure Drop	mAq	4.8	5.1	4.3	4.5	4.7	4.9	4.0	4.2	5.2	5.5	4.9	5.2
	Pressure Drop(Valve)	mAq	2.0	2.1	2.4	2.5	1.3	1.4	1.5	1.6	1.7	1.8	2.2	2.3
	Connection size	A(mm)	125	125	125	125	150	150	150	150	150	150	150	150
		B(inch)	5	5	5	5	6	6	6	6	6	6	6	6
	Connection size of Control valve	A(mm)	125	125	125	125	150	150	150	150	150	150	150	150
B(inch)		5	5	5	5	6	6	6	6	6	6	6	6	
Electrical data	Source	V	3ø 220/380/440V, 50Hz/60Hz											
	Total current	A	52.7	52.7	52.7	52.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7
	Thickness wire	mm <sup>2</sup>	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
	Power	kVA	34.7	34.7	34.7	34.7	43.2	43.2	43.2	43.2	43.2	43.2	43.2	43.2
Pump data	Absorbent pump no.1	kW	8.9	8.9	8.9	8.9	12.2	12.2	12.2	12.2	12.2	12.2	12.2	
		A	30.0	30.0	30.0	30.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	
	Absorbent pump no.2	kW	4.8	4.8	4.8	4.8	4.4	4.4	4.4	4.4	4.4	4.4	4.4	
		A	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	
	Refrigerant pump	kW	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	
		A	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
	Purge pump	kW	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	
A		2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2		
Dimension	Length	mm	6,795	6,795	6,795	6,795	6,880	6,880	6,880	6,880	6,880	6,880	6,880	
	Width	mm	4,070	4,070	4,070	4,070	4,500	4,500	4,500	4,500	4,500	4,500	4,500	
	Height	mm	3,890	3,890	3,890	3,890	4,080	4,080	4,080	4,080	4,080	4,080	4,080	
Rigging	Operating	ton	49.4	52.4	52.4	52.4	58.4	58.4	58.4	62.6	64.8	71.2		
	Max. shipping	ton	34.0	36.2	36.2	36.2	39.7	39.7	39.7	42.7	43.7	48.3		
	Total shipping	ton	41.0	43.6	43.6	43.6	47.8	47.8	47.8	51.4	52.6	58.2		
Clearance for tube removal	mm	6,200	6,700	6,700	6,700	6,200	6,700	6,700	6,700	7,400	8,000			

**Note:**

1. 1usRT = 3,024kcal/h, 1kW = 860kcal/h
2. Standard Tube and Water Side Pressure(Chiller & Cooling Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
3. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
4. Alternate cooling water temperature range available upon request.
5. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
6. The specifications are subject to change without prior notice.
7. For other than above this table, contact nearest LG Electronics office.

# Cycle diagram WCPX

	Energy	Available	Model Selection			(Example) Application
			Efficiency	Model	Remark	
Heat pump	Waste heating Source	Gas Steam Hot water	COP 1.65~1.80	WCPX	World Class High Efficiency Hot water Temp. : 55~90°C	Combined Heat and Power Incinerator system





## WCPX First absorption Heat pump(Steam 0.8 MPa)

Model name			WCPX003	WCPX007	WCPX010	WCPX015	WCPX020
Waste heat source capacity		10 <sup>4</sup> kcal/h	13	31	44	67	89
Hot water Capacity		kW	349	814	1,162	1,743	2,324
		10 <sup>4</sup> kcal/h	30	70	100	150	200
Hot Water Data	Temperature	°C	55.0 → 90.0				
	Water Flow rate	m <sup>3</sup> /h	8.7	20.3	29.0	43.5	58.0
	Pressure Drop	mAq	5.8	10.0	7.4	10.1	8.5
	Connection size	mm(A)	40	65	65	65	80
		inch(B)	1 1/2	2 1/2	2 1/2	2 1/2	3
Waste heat source system	Temperature	°C	46.0 → 40.0				
	Water Flow rate	m <sup>3</sup> /h	22.5	52.5	74.9	112.4	149.9
	Pressure Drop	mAq	5.0	4.4	4.4	4.5	4.4
	Connection size	mm(A)	65	100	100	100	125
		inch(B)	2 1/2	4	4	4	5
Steam Data	Steam Flow rate	kg/h	316	738	1,055	1,582	2,110
	Steam Inlet Connection	mm(A)	40	50	65	65	80
		inch(B)	1 1/2	2	2 1/2	2 1/2	3
	Drain outlet Connection	mm(A)	25	25	25	32	40
		inch(B)	1	1	1	1 1/4	1 1/2
	Steam Control Vavle	mm(A)	40	40	40	50	65
inch(B)		1 1/2	1 1/2	1 1/2	2	2 1/2	
Electrical data	Source	V	3ø 220/380/440V				
	Total current	A	7.6	8.9	8.9	9.9	9.9
	Wire size	mm <sup>2</sup>	3.5	3.5	3.5	3.5	3.5
	Power	kVA	5.0	5.9	5.9	6.5	6.5
	Absorbent pump no. 1	kW(A)	1.2(4.1)	1.5(5.4)	1.5(5.4)	2.4(6.4)	2.4(6.4)
	Refrigerant pump	kW(A)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.2(1.1)
	Purge pump	kW(A)	0.4(1.6)	0.4(1.6)	0.4(1.6)	0.4(1.6)	0.4(1.6)
Dimension	Length	mm	2,180	2,680	2,680	3,700	3,760
	Width	mm	1,400	1,460	1,460	1,460	1,630
	Height	mm	2,090	2,210	2,210	2,350	2,600
Rigging	Operating	ton	3.0	4.6	4.9	6.5	8.4
	Total Shipping	ton	2.8	4.2	4.4	5.8	7.5
	Max Shipping	ton	2.4	3.6	3.7	4.7	6.1

**Note:**

- 1kW = 860kcal/h
- Standard Fouling factor of Waste heat source & Hot Water Circuit : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h.°C)
- Standard Tube and Water Side Pressure(Waste heat source & Hot Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
- Max. steam pressure : 785kPa = 8kg/cm<sup>2</sup>G
- Currents & Electricity Consumptions are based on 3ø 380V 60Hz
- Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
- Total Shipping Weight include weight of the burner & liquid.
- The specifications are subject to change without prior notice.
- For other than above this table, contact nearest LG Electronics office.

## WCPX First absorption Heat pump(Steam 0.8 MPa)

Model name		WCPX026	WCPX033	WCPX040	WCPX052	WCPX066	
Waste heat source capacity	10 <sup>4</sup> kcal/h	116	147	178	231	293	
	kW	3,022	3,835	4,649	6,044	7,671	
Hot water Capacity	10 <sup>4</sup> kcal/h	260	330	400	520	660	
	Temperature	°C 55.0 → 90.0					
Hot Water Data	Water Flow rate	m <sup>3</sup> /h	75.4	95.7	116.0	150.8	191.4
	Pressure Drop	mAq	12.8	11.0	9.8	10.0	7.5
	Connection size	mm(A)	100	100	125	125	150
		inch(B)	4	4	5	5	6
Waste heat source system	Temperature	°C 46.0 → 40.0					
	Water Flow rate	m <sup>3</sup> /h	194.9	247.3	299.8	389.7	494.6
	Pressure Drop	mAq	8.6	8.8	8.4	11.3	6.0
	Connection size	mm(A)	150	150	200	200	250
inch(B)		6	6	8	8	10	
Steam Data	Steam Flow rate	kg/h	2,742	3,481	4,219	5,485	6,962
	Steam Inlet Connection	mm(A)	100	100	125	150	200
		inch(B)	4	4	5	6	8
	Drain outlet Connection	mm(A)	50	65	65	80	80
		inch(B)	2	2 1/2	2 1/2	3	3
	Steam Control Valve	mm(A)	65	80	80	100	150
inch(B)		2 1/2	3	3	4	6	
Electrical data	Source	V	3ø 220/380/440V				
	Total current	A	14.3	14.3	16.0	20.2	20.1
	Wire size	mm <sup>2</sup>	3.5	3.5	3.5	5.5	5.5
	Power	kVA	9.4	9.4	10.5	13.3	13.2
	Absorbent pump no.1	kW(A)	3.4(10.3)	3.4(10.3)	3.7(12.0)	6.6(16.2)	6.6(16.2)
	Refrigerant pump	kW(A)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)
	Purge pump	kW(A)	0.4(1.6)	0.4(1.6)	0.4(1.6)	0.4(1.6)	0.4(1.6)
Dimension	Length	mm	4,780	4,880	4,880	5,630	5,740
	Width	mm	1,630	1,680	1,810	2,120	2,300
	Height	mm	2,600	2,960	3,270	3,800	4,000
Rigging	Operating	ton	10.4	13.1	16.0	23.8	30.6
	Total Shipping	ton	9.2	11.6	14.1	20.9	26.5
	Max Shipping	ton	7.4	9.4	11.5	17.3	22.0

Note:

1. 1kW = 860kcal/h
2. Standard Fouling factor of Waste heat source & Hot Water Circuit : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h.°C)
3. Standard Tube and Water Side Pressure(Waste heat source & Hot Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
4. Max. steam pressure : 785kPa = 8kg/cm<sup>2</sup>G
5. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
6. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
7. Total Shipping Weight include weight of the burner & liquid.
8. The specifications are subject to change without prior notice.
9. For other than above this table, contact nearest LG Electronics office.

### WCPX First absorption Heat pump(Steam 0.8 MPa)

Model name			WCPX082	WCPX098	WCPX115	WCPX130	WCPX147
Waste heat source capacity	10 <sup>4</sup> kcal/h		364	436	511	578	653
Hot water Capacity	kW		9,530	11,390	13,366	15,109	17,085
	10 <sup>4</sup> kcal/h		820	980	1,150	1,300	1,470
Hot Water Data	Temperature	°C	55.0 → 90.0				
	Water Flow rate	m <sup>3</sup> /h	237.8	284.2	333.5	377.0	426.3
	Pressure Drop	mAq	12.4	16.5	19.5	12.6	16.7
	Connection size	mm(A)	150	200	200	250	250
		inch(B)	6	8	8	10	10
Waste heat source system	Temperature	°C	46.0 → 40.0				
	Water Flow rate	m <sup>3</sup> /h	614.5	734.4	861.9	974.3	1101.7
	Pressure Drop	mAq	10.7	10.3	10.5	2.3	3.1
	Connection size	mm(A)	250	300	350	400	400
		inch(B)	10	12	14	16	16
Steam Data	Steam Flow rate	kg/h	8,649	10,337	12,130	13,712	15,505
	Steam Inlet Connection	mm(A)	200	200	250	250	250
		inch(B)	8	8	10	10	10
	Drain outlet Connection	mm(A)	80	100	100	125	125
		inch(B)	3	4	4	5	5
	Steam Control Valve	mm(A)	150	150	200	200	200
inch(B)		6	6	8	8	8	
Electrical data	Source	V	3ø 220/380/440V				
	Total current	A	30.0	32.6	32.6	45.6	45.6
	Wire size	mm <sup>2</sup>	8	8	8	14	14
	Power	kVA	19.7	21.5	21.5	30	30
	Absorbent pump no. 1	kW(A)	7.5(25.0)	7.5(25.0)	7.5(25.0)	15(36.0)	15(36.0)
	Refrigerant pump	kW(A)	0.4(1.4)	1.5(4.0)	1.5(4.0)	3(5.8)	3(5.8)
	Purge pump	kW(A)	0.75(2.5)	0.75(2.5)	0.75(2.5)	0.75(2.5)	0.75(2.5)
Dimension	Length	mm	6,760	6,720	6,860	7,370	8,170
	Width	mm	2,300	2,780	3,010	3,240	3,240
	Height	mm	4,000	4,200	4,300	4,400	4,400
Rigging	Operating	ton	35.1	41.3	48.2	55.8	59.3
	Total Shipping	ton	30.5	36.5	42.7	49.5	52.3
	Max Shipping	ton	25.1	29.4	34.2	40.2	42.0

**Note:**

- 1kW = 860kcal/h
- Standard Fouling factor of Waste heat source & Hot Water Circuit : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h.°C)
- Standard Tube and Water Side Pressure(Waste heat source & Hot Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
- Max. steam pressure : 785kPa = 8kg/cm<sup>2</sup>G
- Currents & Electricity Consumptions are based on 3ø 380V 60Hz
- Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
- Total Shipping Weight include weight of the burner & liquid.
- The specifications are subject to change without prior notice.
- For other than above this table, contact nearest LG Electronics office.

## WCPX First absorption Heat pump(Steam 0.8 MPa)

Model name		WCPX163	WCPX196	WCPX230	WCPX260	
Waste heat source capacity	10 <sup>4</sup> kcal/h	724	871	1,022	1,156	
Hot water Capacity	kW	18,944	22,780	26,731	30,218	
	10 <sup>4</sup> kcal/h	1,630	1,960	2,300	2,600	
Hot Water Data	Temperature	°C 55.0 → 90.0				
	Water Flow rate	m <sup>3</sup> /h	472.7	568.4	667.0	754.0
	Pressure Drop	mAq	21.3	19.8	23.4	15.1
	Connection size	mm(A)	250	300	350	350
		inch(B)	10	12	14	14
Waste heat source system	Temperature	°C 46.0 → 40.0				
	Water Flow rate	m <sup>3</sup> /h	1221.6	1468.9	1723.7	1948.5
	Pressure Drop	mAq	4.1	12.4	12.6	3.2
	Connection size	mm(A)	400	400	450	500
		inch(B)	16	16	18	20
Steam Data	Steam Flow rate	kg/h	17,193	20,674	24,260	27,424
	Steam Inlet Connection	mm(A)	250	200 x 2	250 x 2	250 x 2
		inch(B)	10	8 x 2	10 x 2	10 x 2
	Drain outlet Connection	mm(A)	125	100 x 2	100 x 2	125 x 2
		inch(B)	5	4 x 2	4 x 2	5 x 2
	Steam Control Valve	mm(A)	200	150 x 2	200 x 2	200 x 2
inch(B)		8	6 x 2	8 x 2	8 x 2	
Electrical data	Source	V 3ø 220/380/440V				
	Total current	A	45.6	64.1	64.1	91.2
	Wire size	mm <sup>2</sup>	14	30	30	50
	Power	kVA	30.0	42.2	42.2	60
	Absorbent pump no.1	kW(A)	15(36.0)	7.5(25.0) x 2	7.5(25.0) x 2	15(36.0) x 2
	Refrigerant pump	kW(A)	3(5.8)	1.5(4.0) x 2	1.5(4.0) x 2	3(5.8) x 2
	Purge pump	kW(A)	0.75(2.5)	0.75(2.5) x 2	0.75(2.5) x 2	0.75(2.5) x 2
Dimension	Length	mm	8,970	6,720	6,860	7,370
	Width	mm	3,240	5,460	5,920	6,380
	Height	mm	4,400	4,300	4,400	4,400
Rigging	Operating	ton	62.9	82.6	96.5	112
	Total Shipping	ton	55.0	73.0	85.4	99.0
	Max Shipping	ton	43.7	29.4	34.2	40.2

**Note:**

1. 1kW = 860kcal/h
2. Standard Fouling factor of Waste heat source & Hot Water Circuit : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h.°C)
3. Standard Tube and Water Side Pressure(Waste heat source & Hot Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
4. Max. steam pressure : 785kPa = 8kg/cm<sup>2</sup>G
5. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
6. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
7. Total Shipping Weight include weight of the burner & liquid.
8. The specifications are subject to change without prior notice.
9. For other than above this table, contact nearest LG Electronics office.

## WCPX First absorption Heat pump(Direct Fired)

Model name		WCPX003	WCPX007	WCPX010	WCPX015	WCPX020	WCPX026	
Waste heat source capacity	10 <sup>4</sup> kcal/h	13	31	44	67	89	116	
Hot water Capacity	kW	349	814	1,162	1,743	2,324	3,022	
	10 <sup>4</sup> kcal/h	30	70	100	150	200	260	
Hot Water Data	Temperature	°C 55.0 → 90.0						
	Water flow rate	m <sup>3</sup> /h	8.7	20.3	29.0	43.5	58.0	75.4
	Pressure drop	mAq	5.8	10.0	7.4	10.1	8.5	12.8
	Connection size	mm(A)	40	65	65	65	80	100
		inch(B)	1 1/2	2 1/2	2 1/2	2 1/2	3	4
Waste heat source system	Temperature	°C 46.0 → 40.0						
	Water flow rate	m <sup>3</sup> /h	22.5	52.5	74.9	112.4	149.9	194.9
	Pressure drop	mAq	5.0	4.4	4.4	4.5	4.4	8.6
	Connection size	mm(A)	65	100	100	100	125	150
		inch(B)	2 1/2	4	4	4	5	6
Fuel consumption	Nm <sup>3</sup> /h	16.0	37.4	53.4	80.1	106.8	138.9	
Electrical data	Source	V 3ø 220/380/440V						
	Total current	A	9.8	11.1	13.5	14.8	21.7	26.1
	Wire size	mm <sup>2</sup>	3.5	3.5	3.5	3.5	5.5	8.0
	Power	kVA	6.5	7.3	8.9	9.7	14.3	17.2
	Absorbent pump no. 1	kW(A)	1.2(4.1)	1.5(5.4)	1.5(5.4)	2.4(6.4)	2.4(6.4)	3.4(10.3)
	Refrigerant pump	kW(A)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.2(1.1)	0.4(1.4)
	Purge Pump	kW(A)	0.4(1.6)	0.4(1.6)	0.4(1.6)	0.4(1.6)	0.4(1.6)	0.4(1.6)
	Burner	kW(A)	0.72(2.2)	0.75(2.2)	1.5(4.6)	2.2(4.9)	5.5(11.8)	5.5(11.8)
Dimension	Length	mm	2,620	3,120	3,120	3,990	4,020	4,820
	Width	mm	2,140	2,190	2,190	2,190	2,540	2,560
	Height	mm	2,030	2,060	2,060	2,120	2,390	2,610
Rigging	Operating	ton	4.5	5.6	6.0	7.9	10.1	12.8
	Total Shipping	ton	4.3	5.2	5.5	7.2	9.1	11.6
	Max Shipping	ton	3.6	4.3	4.4	5.7	7.3	9.3

**Note:**

1. 1kW = 860kcal/h
2. Standard Fouling factor of Waste heat source & Hot Water Circuit : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h.°C)
3. Standard Tube and Water Side Pressure(Waste heat source & Hot Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
4. Standard low calorific power : 9,360 kcal/Ncm<sup>2</sup>
5. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
6. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
7. Total Shipping Weight include weight of the burner & liquid.
8. The specifications are subject to change without prior notice.
9. For other than above this table, contact nearest LG Electronics office.

## WCPX First absorption Heat pump(Direct Fired)

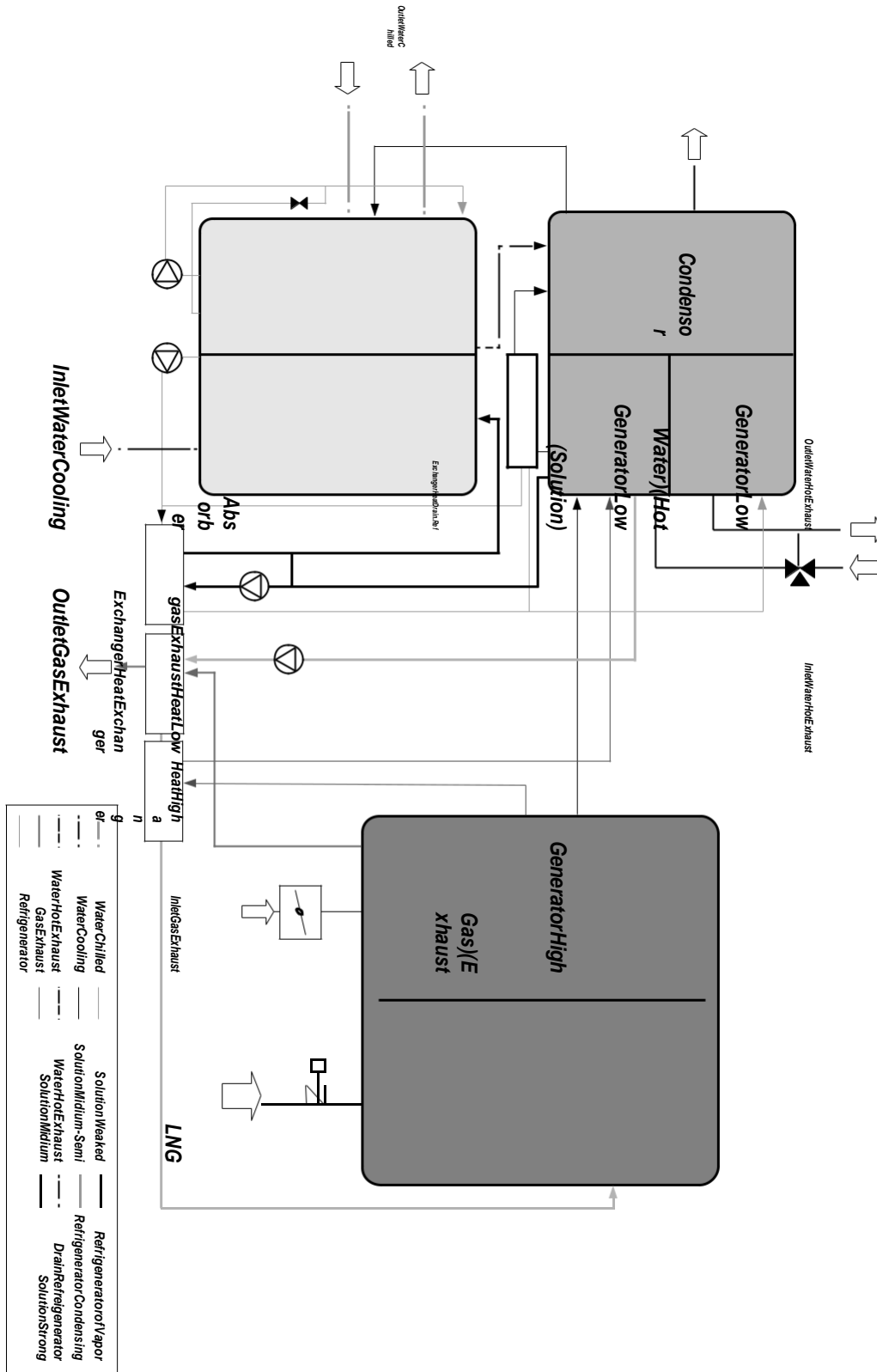
Model name		WCPX033	WCPX040	WCPX052	WCPX066	WCPX082	
Waste heat source capacity	10 <sup>4</sup> kcal/h	147	178	231	293	364	
Hot water Capacity	kW	3,835	4,649	6,044	7,671	9,530	
	10 <sup>4</sup> kcal/h	330	400	520	660	820	
Hot Water Data	Temperature	°C 55.0 → 90.0					
	Water flow rate	m <sup>3</sup> /h	95.7	116.0	150.8	191.4	237.8
	Pressure drop	mAq	11.0	9.8	10.0	7.5	12.4
	Connection size	mm(A)	100	125	125	150	150
		inch(B)	4	5	5	6	6
Waste heat source system	Temperature	°C 46.0 → 40.0					
	Water flow rate	m <sup>3</sup> /h	247.3	299.8	389.7	494.6	614.5
	Pressure drop	mAq	8.8	8.4	11.3	6.0	10.7
	Connection size	mm(A)	150	200	200	250	250
		inch(B)	6	8	8	10	10
Fuel consumption	Nm <sup>3</sup> /h	176.3	213.7	277.8	352.6	438.0	
Electrical data	Source	V 3ø 220/380/440V					
	Total current	A	30.3	32.0	36.2	42.9	59.3
	Wire size	mm <sup>2</sup>	8.0	8.0	14.0	14.0	22.0
	Power	kVA	19.9	21.1	23.8	28.2	39.0
	Absorbent pump no.1	kW(A)	3.4(10.3)	3.7(12.0)	6.6(16.2)	6.6(16.2)	7.5(25.0)
	Refrigerant pump	kW(A)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)	0.4(1.4)
	Purge Pump	kW(A)	0.4(1.6)	0.4(1.6)	0.4(1.6)	0.4(1.6)	0.75(2.5)
	Burner	kW(A)	7.5(16.0)	7.5(16.0)	7.5(16.0)	11.0(22.7)	15.0(29.3)
Dimension	Length	mm	4,940	5,080	6,080	6,710	7,810
	Width	mm	2,830	3,010	3,500	4,020	4,070
	Height	mm	3,030	3,030	3,650	3,650	3,680
Rigging	Operating	ton	16.3	19.9	29.8	39.3	55.9
	Total Shipping	ton	14.8	18.0	26.9	35.3	51.4
	Max Shipping	ton	11.9	14.5	21.9	28.7	42.8

**Note:**

1. 1kW = 860kcal/h
2. Standard Fouling factor of Waste heat source & Hot Water Circuit : 0.086m<sup>2</sup>K/kW (0.0001 m<sup>2</sup>.h.°C)
3. Standard Tube and Water Side Pressure(Waste heat source & Hot Water Circuit): 10kg/cm<sup>2</sup>G(981kPa)
4. Standard low calorific power : 9,360 kcal/Ncm<sup>2</sup>
5. Currents & Electricity Consumptions are based on 3ø 380V 60Hz
6. Power supply wire size is based on the due of metal conduit and 40°C of ambient temperature.
7. Total Shipping Weight include weight of the burner & liquid.
8. The specifications are subject to change without prior notice.
9. For other than above this table, contact nearest LG Electronics office.

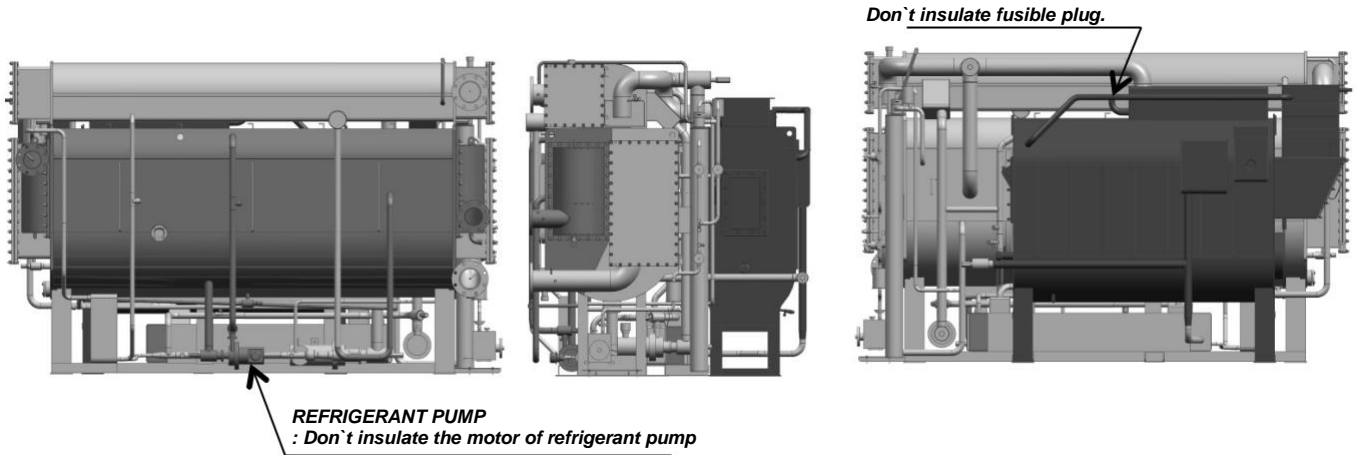
# Cycle diagram WCHA

Energy	Available	Model Selection			(Example) Application
		Efficiency	Model	Remark	
Chiller	Multiple Energy	Exhaust gas + Hot water + (LNG)	COP 1.2	WCHA	Hybrid Absorption Chiller Using more than 2 kinds of heat source
					Combined Heat and Power District energy system



# Thermal insulation

## Direct Fired (WCD Series, H,N,S-TYPE)



-  75mm FOR WARM SURFACE
-  25mm FOR WARM SURFACE
-  19mm FOR COLD SURFACE
-  REMOVAL PART

**NOTE.**

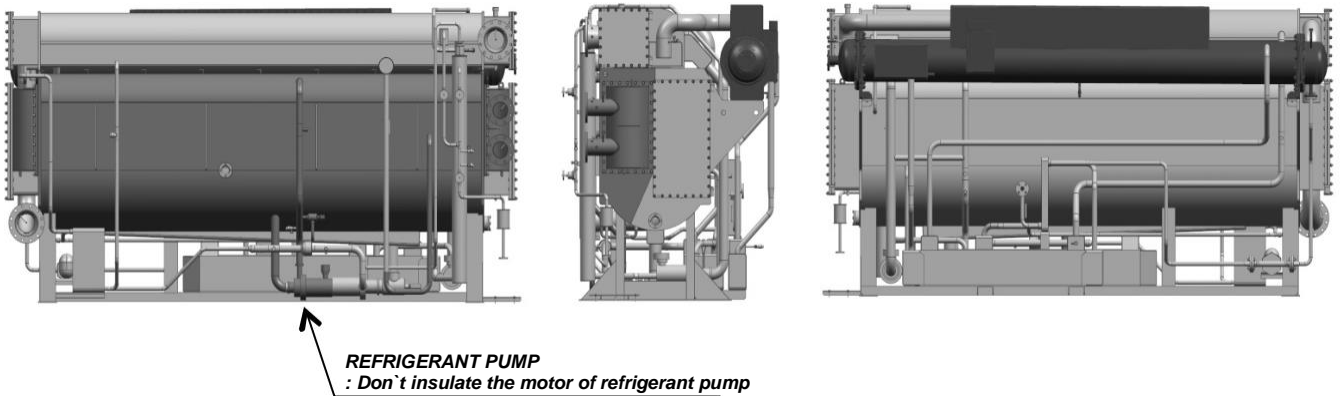
• Material : Glass Wool, Galvanized Steel Plate,  
Nitrile-Butadiene Rubber(NBR)

1. Use noncombustible insulation material.
2. Do not insulate motor of refrigerant pump.
3. Insulation area includes piping.
4. The Chiller is coated with a anticorrosive paint at the factory.  
*Finish painting is typically performed in the field after insulating is complete.*

Capacity(RT)	Hot Surface (m <sup>2</sup> )		Cold(m <sup>2</sup> )
	75mm	25mm	19mm
100	6.3	5.0	4.4
120	6.9	5.3	4.4
150	8.1	6.1	5.9
180	8.7	6.5	5.9
210	10.1	7.1	6.8
240	10.9	7.2	6.8
280	11.9	8.8	8.4
320	12.6	9.0	8.4
360	14.5	9.9	9.9
400	15.3	10.0	9.9
450	17.5	10.5	11.2
500	18.4	10.7	11.2
560	20.0	11.8	13.9
630	21.3	12.6	15
700	22.4	13.3	16.1
800	27.2	14.7	17.3
900	29.0	15.5	19.5
1,000	30.8	16.3	19.9
1,100	36.7	18.4	12.7
1,200	38.7	19.1	13.3
1,300	40.7	19.8	13.8
1,400	45.5	20.7	14.6
1,500	47.0	21.5	15.1



## Steam Fired (WCS Series H,S-TYPE)



-  75mm FOR WARM SURFACE
-  25mm FOR WARM SURFACE
-  19mm FOR COLD SURFACE
-  REMOVAL PART

**NOTE.**

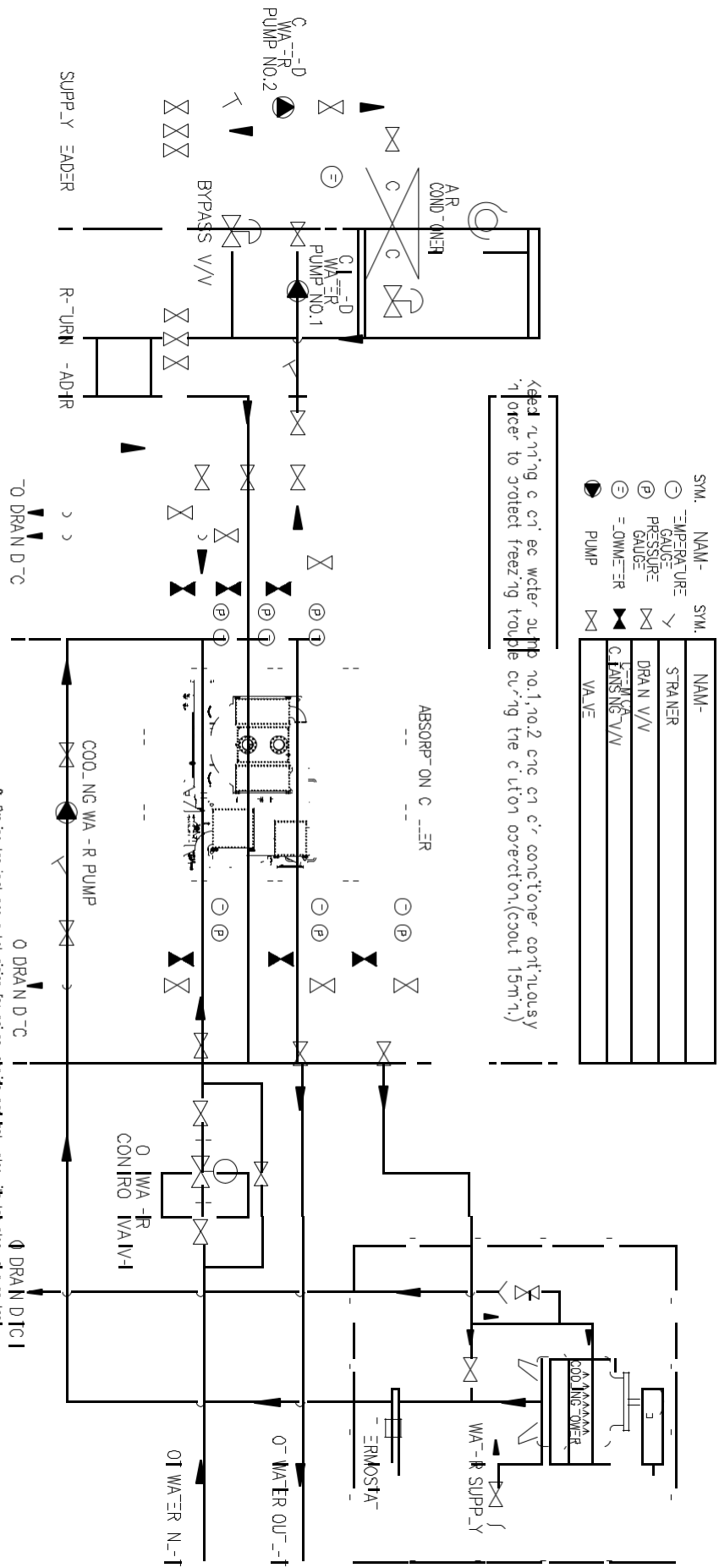
• Material : Glass Wool, Galvanized Steel Plate,  
Nitrile-Butadiene Rubber(NBR)

1. Use noncombustible insulation material.
2. Do not insulate motor of refrigerant pump.
3. Insulation area includes piping.
4. The Chiller is coated with a anticorrosive paint at the factory.  
*Finish painting is typically performed in the field after insulating is complete.*

Capacity(RT)	Hot Surface (m <sup>2</sup> )		Cold(m <sup>2</sup> )
	75mm	25mm	19mm
100	5.3	3.0	4.4
120	5.3	3.4	4.4
150	7.5	3.7	5.9
180	7.5	4.2	5.9
210	8.4	4.7	6.8
240	8.4	4.8	6.8
280	11.2	5.8	8.4
320	11.2	6.0	8.4
360	12.7	6.5	9.9
400	12.7	6.7	9.9
450	13.4	6.9	11.2
500	13.4	7.2	11.2
560	16.1	8.8	13.9
630	18.1	9.3	15
700	19.9	9.7	16.1
800	21.2	10.7	17.3
900	23.3	11.2	19.5
1,000	25.4	11.7	19.9
1,100	27.2	13.5	12.7
1,200	29.6	13.9	13.3
1,300	31.9	14.3	13.8
1,400	31.3	15.2	14.6
1,500	33.8	15.5	15.1

# Piping diagram *Direct fired absorption chiller (MH Type)*

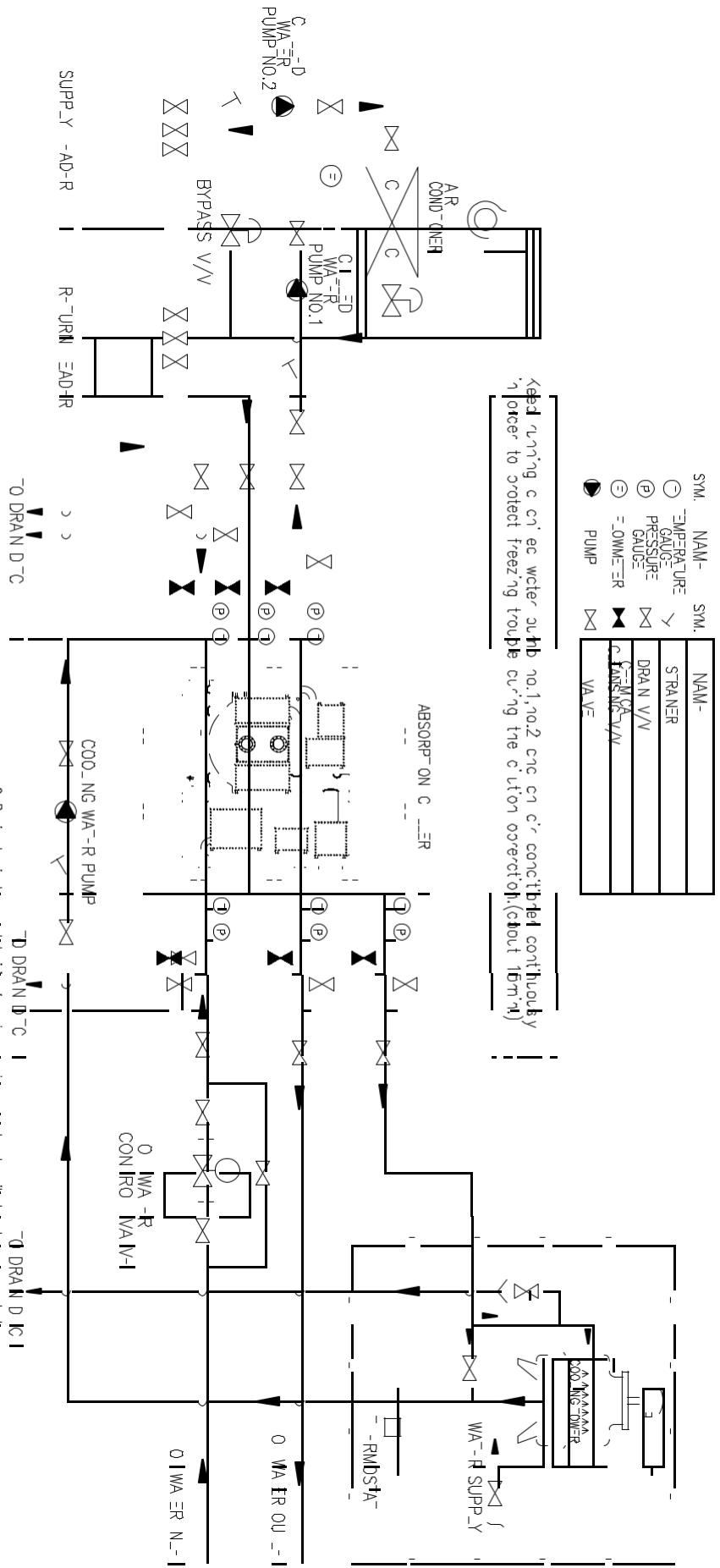
- \*GENERAL REMARKS ON PIPING WORK:
1. See supply boundary line. ( )
  2. See "OUTLINE" drawing for dimension, size of connections.
  3. 10kg/cm<sup>2</sup> is the maximum operation pressure of Chiller/Cooling water pipe.
  4. See "CONTROL OF COOLING WATER PIPING" drawing for information of control valve.
  5. Provide separate circuit, cooling and hot water pumps for each absorption machine.
  6. Provide a check valve in the cooling water line for control of cooling water quality.
  7. Install a strainer having a mesh of 10 or so.



- 1) Install thermometers and pressure gauges at locations convenient for servicing in the trial one.
  - 2) Install air vent valves for water lines at a position above the absorption machine.
  - 3) Install drain valves for water lines at a position below the absorption machine, one then extends them up to the ceiling.
  - 4) For chemical cleaning, install the stop valves for cleaning between the unit and each stop valve at the inlet or outlet.
8. Provide the inlet and outlet piping for cooling and hot water with the stop valve so that the piping can be connected easily.

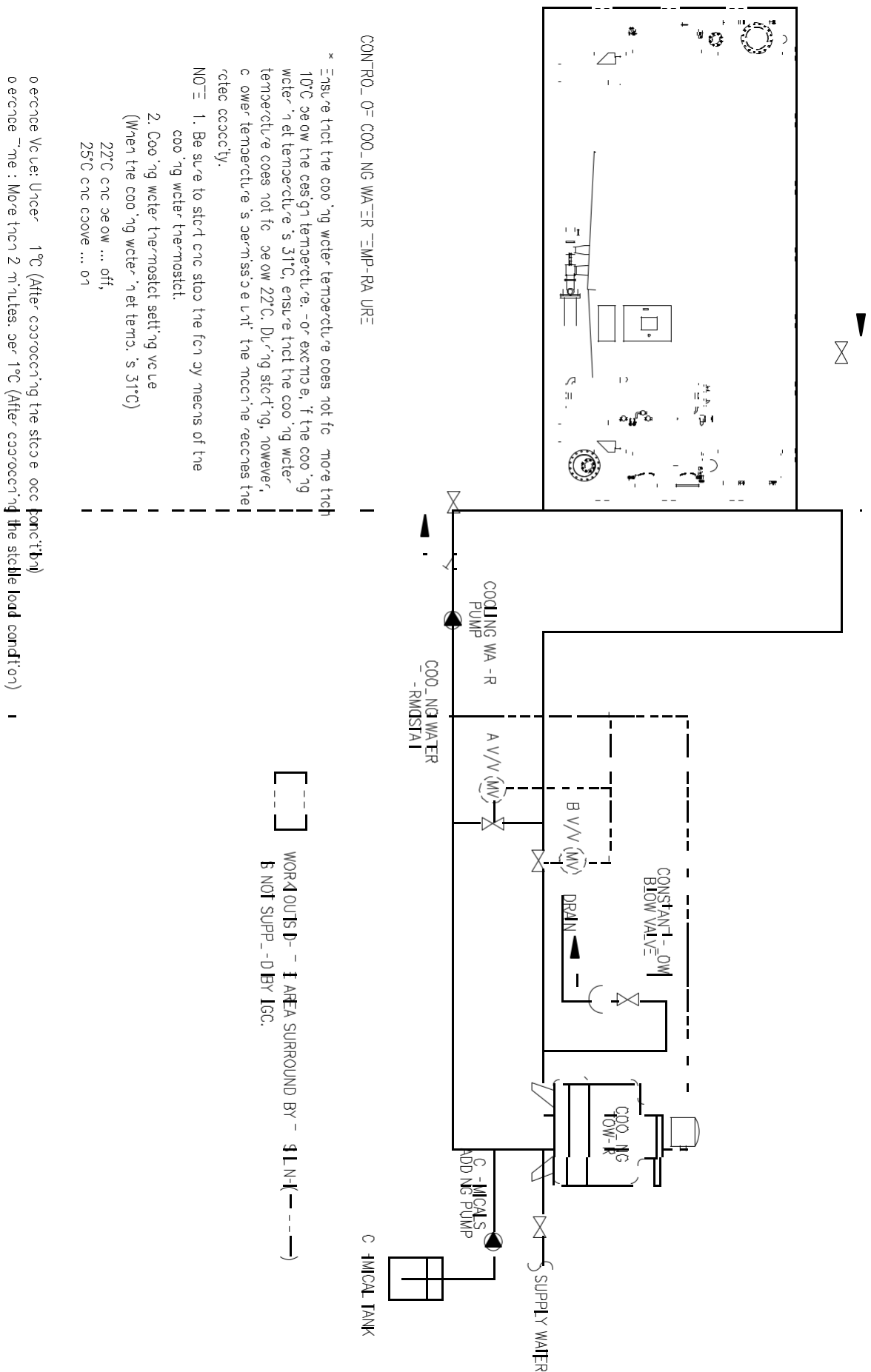
# Piping diagram Steam absorption chiller (2H, 2N Type)

- \*GENERAL REMARKS ON PIPING WORK:
1. See survey summary file ( )
  2. See "PIPEWORK" drawing for dimensions, size of connections.
  3. 10kg/cm<sup>2</sup> is the maximum operation pressure of Chiller/Cooling water pipe.
  4. See "CONTROL OF COOLING WATER TEMPERATURE" drawing for information of control ( )
  5. Provide separate valves, cooling and hot water pumps for each absorption machine.
  6. Provide a check in the cooling water line for control of cooling water quality.
  7. Install a strainer having a mesh of 10 or so.



- 1) Install thermometers and pressure gauges at positions convenient for servicing in the inlet and outlet water lines.
  - 2) Install air vent valves for water lines at a position above the absorption machine.
  - 3) Install drain valves for water lines at a position above the absorption machine.
  - 4) For chemical cleaning, install the stop valves for cleaning between the inlet and outlet.
8. Provide the in-line air filter for chiller cooling and hot water with the stop valve so that the piping can be cleaned easily.

# Piping diagram | Hot water fired absorption chiller (2H, 2N, MH Type)



CONTROL OF COOLING WATER TEMPERATURE

- × Ensure that the cooling water temperature does not become higher than 10°C above the design temperature. For example, if the cooling water inlet temperature is 31°C, ensure that the cooling water temperature does not become 22°C. During starting, however, cooling water temperature is permitted to increase as follows.
- NOTE
1. Be sure to stop the fan by means of the cooling water thermostat.
  2. Cooling water thermostat setting value
    - (When the cooling water inlet temperature is 31°C)
    - 22°C once power is off,
    - 25°C once power is on
- Exercise Value: Under 1°C (After accomplishing the stop operation)
- Exercise Time: More than 2 minutes per 1°C (After accomplishing the stable load condition)

# Standard of water quality

## Standard of water quality

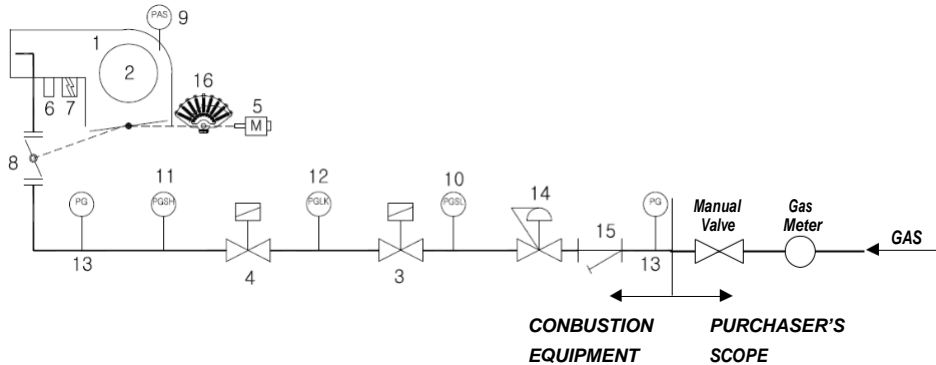
The cooling water of an open-type recycling cooling tower lowers temperature of the cooling water using vaporized latent-heat and is reused. In this case, the water is evaporated and dissolved salts, Hardness materials, sulfate ion, etc. in the water will increase. Namely, condensation phenomena of such materials occurs in the water, and water quality will gradually

be degraded. As the water and air always come in contact with each other in the cooling tower, sulfurous acidgas, dust, sand, etc. in the atmosphere will mix into the water, further degrading the water quality. in the cooling water system, problems with water are caused by these factors. Typical problems are corrosion, scales and slimes.

Model	Cooling Water		Chilled Water		Tendency	
	One-pass or Circulating	Make-up water	Circulating water	Make-up	Corrosion	Scale
pH(25°C)	6.5~8.0	6.5~8.0	6.5~8.0	6.5~8.0	0	0
Electrical conductivity (25°C μs/cm)	Max.800	Max.200	Max.500	Max.200	0	0
Alkalinity (ppm)	Max.100	Max.50	Max.100	Max.50		0
Total hardness (ppm)	Max.200	Max.50	Max.100	Max.50	0	
Chlorine ion (ppm)	Max.200	Max.50	Max.100	Max.50	0	
Sulfuric acid ion (ppm)	Max.200	Max.50	Max.100	Max.50	0	
Total ion (ppm)	Max.1.0	Max.0.3	Max.1.0	Max.0.3	0	
Sulfur ion (ppm)	No trace	No trace	No trace	No trace	0	
Ammonium ion (ppm)	Max.1.0	Max.1.0	Max.0.5	Max.0.2	0	
Silica (ppm)	Max.50	Max.30	Max.50	Max.30		0
Free carbonic acid (ppm)	*****	****	Max.1.0	Max.1.0	0	

## Combustion Sequence Diagram

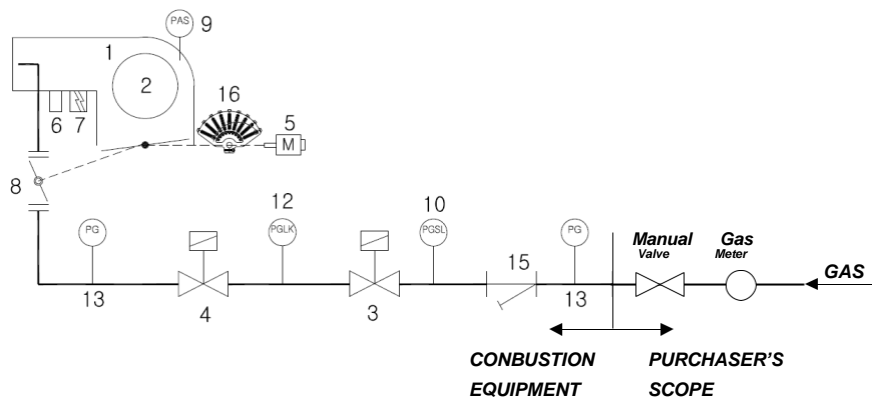
### Gas (Gas pressure : 900~4,000mmAq)



### Part list

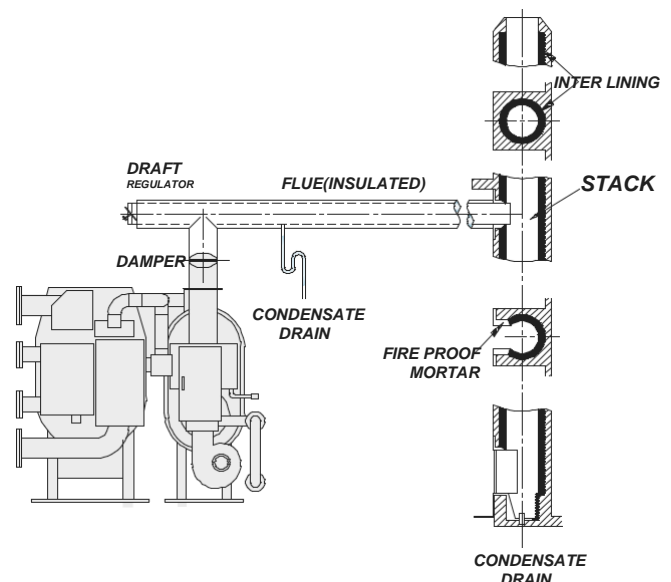
1. Burner
2. Sirocco fan
3. Safety shut-off valve
4. Safety shut-off valve
5. Damper motor
6. Flame detector
7. Ignition trans
8. Butterfly valve
9. Air pressure switch
10. Gas pressure low switch (PGSL)
11. Gas pressure high switch (PGSH)
12. Gas leak switch (PGLK)
13. Gas pressure gauge
14. Governor
15. Gas filter (included in governor)
16. Sector regulator

### Gas (Gas pressure : 200mmAq)



## Flue and Stack Connection

1. Local regulations regarding exhaust of direct-fired burners must be adhered to. These instructions shown are typical and are not meant to supersede local codes in any way.
2. The steel stack should be lined on the interior surface to protect the stack from corrosion due to moisture in the exhaust gas.
3. The flue and stack must be heat insulated and provided with a condensate drain.
4. Do not connect the flue to an incinerator stack.
5. Place the top of the stack within a sufficient distance from the cooling towers to prevent contamination.
6. Provide a barometric draft regulator or damper if fluctuations or downdraft in static pressure are expected inside the flue. Some means of controlling the flue draft may be necessary to insure that proper combustion efficiency is maintained at all times.
7. If a common stack is to be used, exhaust must be prevented from floeing into the unit(s) that are not in operation.
8. The draft pressure at the flue flange should be designed for a maximum negative pressure of -5mmH<sub>2</sub>O.



# Multi-Sectional shipment

## WCDH Series

Model	Entrance dimension of total unit				Entrance dimension of 3-sectional shipment											
					Upper shell				Lower Shell				High temperature generator			
	Length	Width	Height	Weight	Length	Width	Height	Weight	Length	Width	Height	Weight	Length	Width	Height	Weight
	mm	mm	mm	ton	mm	mm	mm	ton	mm	mm	mm	ton	mm	mm	mm	ton
WCDH010S	3,095	2,035	2,110	3.8	2,965	1,180	530	0.7	2,965	1,520	2,010	1.9	1,590	760	1,930	1.2
WCDH012S	3,095	2,035	2,110	4.0	2,965	1,180	530	0.8	2,965	1,520	2,010	2.1	1,590	760	1,930	1.2
WCDH015S	3,945	2,035	2,110	4.6	3,945	1,180	530	1.0	3,945	1,520	2,010	2.4	1,800	760	1,930	1.2
WCDH018S	3,945	2,165	2,110	5.0	3,945	1,180	530	1.0	3,945	1,520	2,010	2.6	1,950	880	1,930	1.4
WCDH021S	3,995	2,220	2,455	5.8	3,995	1,250	600	1.2	3,995	1,520	2,155	3.0	2,100	880	1,930	1.6
WCDH024S	3,995	2,240	2,455	6.1	3,995	1,250	600	1.2	3,995	1,520	2,155	3.1	2,270	900	2,110	1.7
WCDH028S	5,015	2,295	2,455	7.4	5,015	1,250	600	1.5	5,015	1,520	2,155	3.8	2,450	900	2,110	1.9
WCDH032S	5,015	2,295	2,455	7.8	5,015	1,250	600	1.6	5,015	1,520	2,155	4.0	2,750	910	2,130	2.0
WCDH036S	5,090	2,500	2,630	8.7	5,090	1,385	670	1.8	5,090	1,730	2,550	4.6	3,250	910	2,130	2.2
WCDH040S	5,090	2,585	2,630	9.4	5,090	1,385	670	2.0	5,090	1,730	2,550	5.0	3,000	1,000	2,370	2.4
WCDH045S	5,100	2,835	2,965	11.0	5,100	1,520	710	2.3	5,100	1,910	2,625	5.9	3,000	1,040	2,380	2.8
WCDH050S	5,100	2,925	2,965	12.4	5,100	1,520	710	2.4	5,100	1,910	2,625	6.1	3,190	1,130	2,600	3.4
WCDH056S	5,510	3,095	3,335	15.0	5,200	1,600	870	2.9	5,200	2,140	2,980	7.3	3,350	1,130	2,600	4.0
WCDH063S	5,720	3,220	3,335	17.5	5,720	1,600	870	3.3	5,720	2,140	2,980	8.6	3,230	1,370	3,080	4.5
WCDH070S	6,210	3,220	3,335	19.5	6,210	1,600	870	3.7	6,210	2,140	2,980	9.5	3,500	1,350	3,080	5.0
WCDH080S	5,810	3,870	3,590	21.0	5,835	1,770	1,090	4.0	5,835	2,570	2,840	10.3	3,650	1,400	3,600	6.0
WCDH090S	6,400	4,120	3,640	22.5	6,330	1,770	1,090	4.3	6,330	2,570	2,840	11.0	3,700	1,500	3,600	7.0
WCDH100S	6,900	4,120	3,640	24.0	6,790	1,770	1,090	4.6	6,790	2,570	2,840	11.8	3,900	1,500	3,600	8.0
WCDH110S	6,400	4,470	3,840	26.0	6,260	2,200	1,140	5.0	6,260	2,890	3,000	12.7	4,320	1,620	3,600	9.0
WCDH120S	6,900	4,470	3,840	28.0	6,780	2,200	1,140	5.3	6,780	2,890	3,000	13.7	4,620	1,620	3,600	10.0
WCDH130S	7,400	4,470	3,840	30.0	7,280	2,200	1,140	5.7	7,280	2,890	3,000	14.7	4,920	1,620	3,600	11.0
WCDH140S	7,050	4,870	3,940	32.0	6,840	2,300	1,170	6.1	6,840	3,500	3,000	15.7	4,940	1,870	3,800	12.0
WCDH150S	7,550	4,870	3,940	34.0	7,340	2,300	1,170	6.5	7,340	3,500	3,000	16.6	5,140	1,870	3,800	13.0

# Multi-Sectional shipment



## WCSH Series

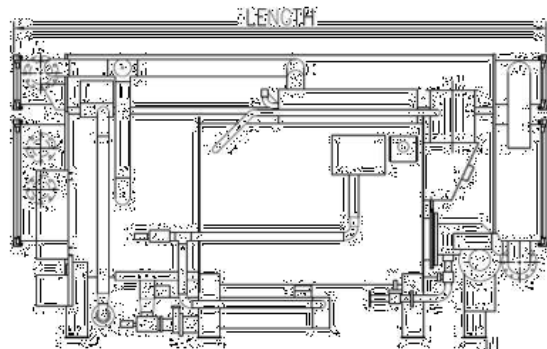
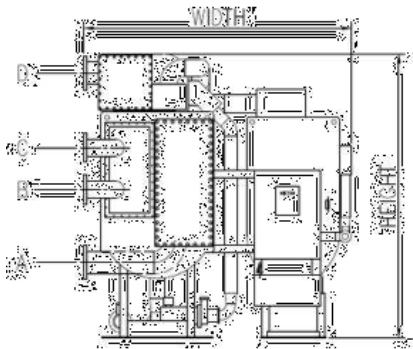
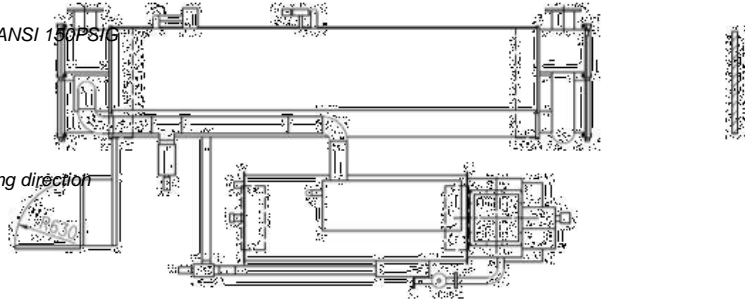
Model	Entrance dimension of total unit				Entrance dimension of 3-sectional shipment											
					Upper shell				Lower Shell				High temperature generator			
	Length	Width	Height	Weight	Length	Width	Height	Weight	Length	Width	Height	Weight	Length	Width	Height	Weight
	mm	mm	mm	ton	mm	mm	mm	ton	mm	mm	mm	ton	mm	mm	mm	ton
WCSH010	2,930	1,880	2,105	3.5	2,930	1,520	2,105	0.7	2,930	1,700	1,970	1.9	2,600	500	700	0.9
WCSH012	2,930	1,880	2,105	3.9	2,930	1,520	2,105	0.8	2,930	1,700	1,970	2.1	2,600	500	700	1.0
WCSH015	3,920	1,880	2,110	4.6	3,920	1,520	2,105	1.0	3,920	1,700	1,970	2.4	3,620	500	700	1.2
WCSH018	3,920	1,880	2,150	4.9	3,920	1,520	2,105	1.0	3,920	1,700	1,970	2.6	3,620	500	700	1.3
WCSH021	3,920	2,070	2,455	5.7	3,920	1,513	2,455	1.2	3,920	1,900	2,300	3.0	3,650	530	790	1.5
WCSH024	3,920	2,070	2,455	5.9	3,920	1,513	2,455	1.2	3,920	1,900	2,300	3.1	3,650	530	790	1.6
WCSH028	4,940	2,140	2,455	7.1	4,940	1,513	2,455	1.5	4,940	1,900	2,300	3.8	4,680	530	790	1.9
WCSH032	4,940	2,140	2,455	7.6	4,940	1,513	2,455	1.6	4,940	1,900	2,300	4.0	4,680	530	790	2.0
WCSH036	5,000	2,270	2,630	8.6	5,000	1,730	2,630	1.8	5,000	2,000	2,510	4.6	4,730	630	850	2.3
WCSH040	5,000	2,270	2,630	9.6	5,000	1,730	2,630	2.0	5,000	2,000	2,510	5.1	4,730	630	850	2.6
WCSH045	5,015	2,455	2,990	11.3	5,015	1,910	2,965	2.1	5,015	2,100	2,590	5.4	4,860	720	920	3.8
WCSH050	5,015	2,455	2,990	12.5	5,015	1,910	2,965	2.4	5,015	2,100	2,590	6.1	4,860	720	920	4.1
WCSH056	5,230	2,690	3,340	14.8	5,230	2,140	3,335	2.9	5,230	2,290	2,940	7.3	4,900	770	1,070	4.6
WCSH063	5,720	2,690	3,340	17.6	5,720	2,140	3,335	3.3	5,720	2,290	2,940	8.6	5,450	770	1,070	5.7
WCSH070	6,210	2,690	3,340	19.9	6,210	2,140	3,335	3.7	6,210	2,290	2,940	9.5	5,940	770	1,070	6.7
WCSH080	5,835	3,160	3,590	21.3	5,835	2,570	3,590	4.0	5,835	3,090	2,810	10.3	5,600	1,000	1,230	7.1
WCSH090	6,330	3,160	3,590	22.7	6,330	2,570	3,590	4.3	6,330	3,090	2,810	11.0	6,000	1,000	1,230	7.4
WCSH100	6,790	3,160	3,590	24.1	6,790	2,570	3,590	4.6	6,790	3,090	2,810	11.8	6,530	1,000	1,230	7.8
WCSH110	6,260	3,250	3,860	26.0	6,260	3,370	3,820	5.0	6,260	2,870	2,850	12.7	6,000	930	1,230	8.3
WCSH120	6,780	3,250	3,860	27.8	6,780	3,370	3,820	5.3	6,780	2,870	2,850	13.7	6,990	930	1,230	8.8
WCSH130	7,280	3,250	3,860	29.7	7,280	3,370	3,820	5.7	7,280	2,870	2,850	14.7	6,000	930	1,230	9.3
WCSH140	6,840	3,590	3,880	31.5	6,840	3,500	3,880	6.1	6,840	3,000	2,950	15.7	6,540	950	1,310	9.8
WCSH150	7,340	3,590	3,880	33.4	7,340	3,500	3,880	6.5	7,340	3,000	2,950	16.6	7,040	950	1,310	10.3



# Outline & Foundation | Direct fired absorption chiller & heater

## WCDH

1. All external water piping are to be provided with welded ANSI 150PSIG RF flanges by the customer.
2. Installation and service clearance as follows : Longitudinal distance - 1,000mm  
Top - 200mm  
Control panel side - 1,200mm
3. Please refer to the LG Electronics drawings for the piping direction



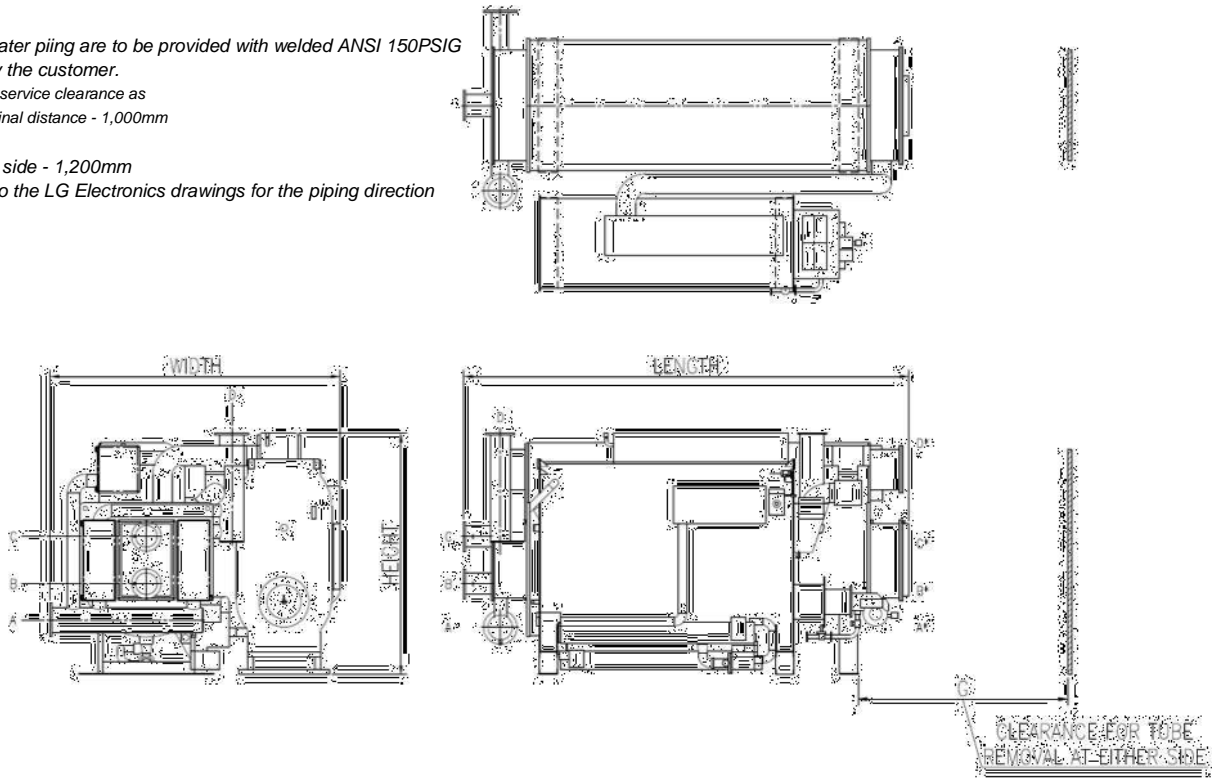
CLEARANCE FOR THE REMOVAL AT FITTING SIDE

Model	Dimension(mm)			Nozzle connection(B)				Clearance(mm)
	Length	Width	Height	A	B	C	D	
WCDH010	2,895	1,965	2,070	5	4	4	5	2,400
WCDH012	2,895	1,965	2,070	5	4	4	5	2,400
WCDH015	3,745	1,965	2,070	5	4	4	5	3,400
WCDH018	3,745	2,095	2,070	5	4	4	5	3,400
WCDH021	3,795	2,150	2,415	6	5	5	6	3,400
WCDH024	3,795	2,170	2,415	6	5	5	6	3,400
WCDH028	4,815	2,225	2,415	8	6	6	8	4,500
WCDH032	4,815	2,225	2,415	8	6	6	8	4,500
WCDH036	4,890	2,430	2,590	8	6	6	8	4,500
WCDH040	4,890	2,515	2,590	8	6	6	8	4,500
WCDH045	4,900	2,765	2,925	10	8	8	10	4,500
WCDH050	4,900	2,855	2,925	10	8	8	10	4,500
WCDH056	5,310	3,025	3,295	12	8	8	12	4,500
WCDH063	5,520	3,150	3,295	12	8	8	12	5,200
WCDH070	6,010	3,150	3,295	12	8	8	12	5,700

# Outline & Foundation | Direct fired absorption chiller & heater

## WCDH

1. All external water piping are to be provided with welded ANSI 150PSIG RF flanges by the customer.
2. Installation and service clearance as follows :
  - Logitudinal distance - 1,000mm
  - Top - 200mm
  - Control panel side - 1,200mm
3. Please refer to the LG Electronics drawings for the piping direction

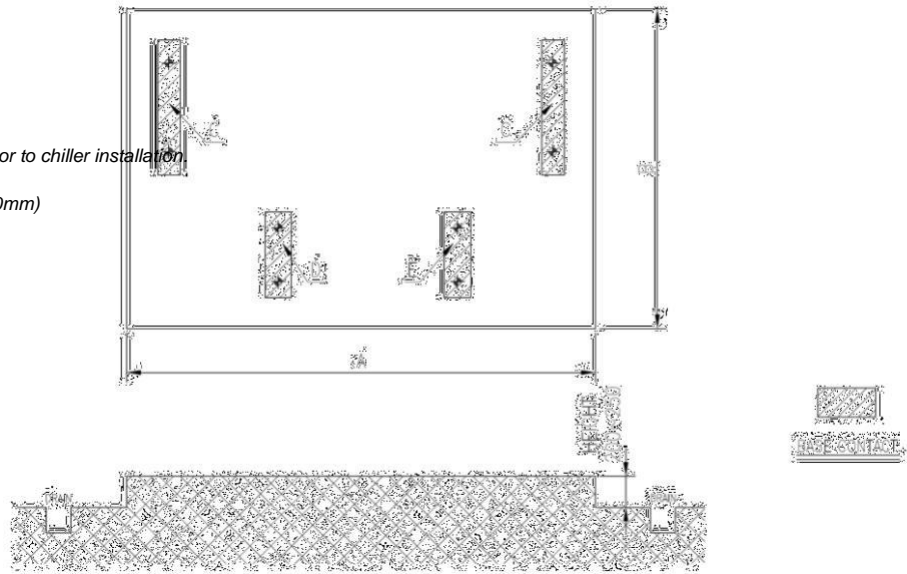


Model	Dimension(mm)			Nozzle connection(B)				Clearance(mm)
	Length	Width	Height	A	B	C	D	G
WCDH080	5,635	3,800	3,550	14	10	10	14	5,200
WCDH090	6,130	3,920	3,600	14	10	10	14	5,700
WCDH100	6,590	3,920	3,600	14	10	10	14	6,200
WCDH110	6,140	4,200	3,780	16	12	12	16	5,700
WCDH120	6,660	4,300	3,780	16	12	12	16	6,200
WCDH130	7,160	4,300	3,780	16	12	12	16	6,700
WCDH140	6,640	4,700	3,840	16	14	14	16	6,200
WCDH150	7,140	4,850	3,840	16	14	14	16	6,700

# Outline & Foundation | Direct fired absorption chiller & heater

## WCDH

1. The foundation and the floor must be sufficiently strong to support the unit weight.
2. Provide a floor drain near chiller foundation.
3. Only if foundation anchoring is required, anchor bolts, nuts and washers, shall be supplied together with chiller.  
Anchor bolts must be fixed on the foundation prior to chiller installation.
4. Unit must be leveled before startup.  
(Horizontal level must be below than 2mm/1,000mm)

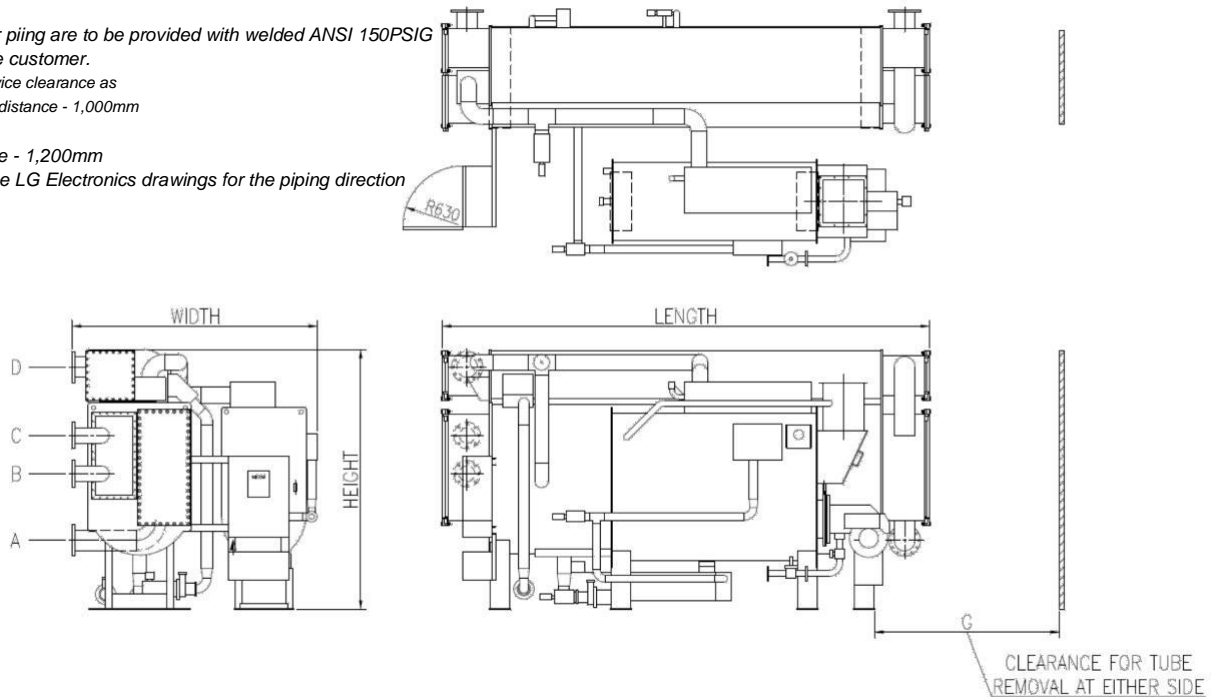


Model	Dimension(mm)			Weight(ton)		
	A	B	C	D	E	Total
WCDH010S	2,500	2000	1.7	0.7	0.9	4.9
WCDH012S	2,500	2000	1.8	0.7	0.9	5.2
WCDH015S	3,500	2000	2.3	0.7	0.9	6.2
WCDH018S	3,500	2100	2.5	0.9	1.1	6.9
WCDH021S	3,500	2150	3.0	1.0	1.2	8.0
WCDH024S	3,500	2150	3.1	1.1	1.3	8.6
WCDH028S	4,500	2250	4.0	1.2	1.4	10.4
WCDH032S	4,500	2250	4.1	1.3	1.5	10.9
WCDH036S	4,500	2500	4.7	1.4	1.6	12.4
WCDH040S	4,500	2550	5.0	1.4	1.7	13.2
WCDH045S	4,500	2900	5.9	1.7	2.0	15.5
WCDH050S	4,500	2900	6.4	2.1	2.4	17.3
WCDH056S	4,500	3100	8.0	2.4	2.8	21.2
WCDH063S	5,050	3300	9.3	2.7	3.1	24.4
WCDH070S	5,550	3300	10.4	3.0	3.4	27.2
WCDH080S	5,050	3,750	13.7	4.0	4.4	35.8
WCDH090S	5,550	4,000	14.3	4.7	5.2	38.4
WCDH100S	6,100	4,000	15.1	5.6	6.1	41.9
WCDH110S	5,150	4,150	16.1	6.4	7.0	45.6
WCDH120S	5,700	4,150	17.2	7.4	7.9	49.7
WCDH130S	6,200	4,150	18.5	8.3	8.8	54.1
WCDH140S	5,700	4,600	19.8	9.2	9.7	58.5
WCDH150S	6,200	4,600	20.9	10.1	10.8	62.7

# Outline & Foundation | Direct fired absorption chiller & heater

## WCDN

1. All external water piping are to be provided with welded ANSI 150PSIG RF flanges by the customer.
2. Installation and service clearance as follows : Longitudinal distance - 1,000mm  
Top - 200mm  
Control panel side - 1,200mm
3. Please refer to the LG Electronics drawings for the piping direction

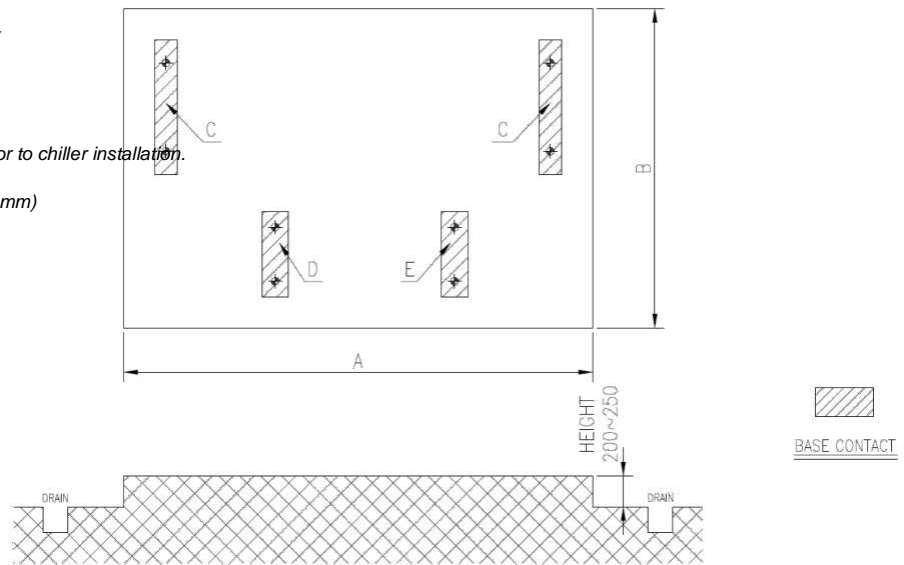


Model	Dimension(mm)			Nozzle connection(B)				Clearance(mm)
	Length	Width	Height	A	B	C	D	G
WCDN010	3,070	1,930	2,130	5	4	4	5	2,400
WCDN012	3,070	1,930	2,130	5	4	4	5	2,400
WCDN015	3,740	2,040	2,130	5	4	4	5	3,400
WCDN018	3,820	2,070	2,130	5	4	4	5	3,400
WCDN021	3,860	2,280	2,290	6	5	5	6	3,400
WCDN024	3,860	2,280	2,290	6	5	5	6	3,400
WCDN028	4,800	2,280	2,290	8	6	6	8	4,500
WCDN032	4,800	2,280	2,290	8	6	6	8	4,500
WCDN036	4,915	2,570	2,535	8	6	6	8	4,500
WCDN040	4,915	2,620	2,535	8	6	6	8	4,500
WCDN045	5,065	2,890	2,790	10	8	8	10	4,500
WCDN050	5,265	2,890	2,790	10	8	8	10	4,500
WCDN056	5,410	3,355	3,235	12	8	8	12	4,500
WCDN063	5,670	3,375	3,235	12	8	8	12	5,200
WCDN070	6,115	3,375	3,235	12	8	8	12	5,700

# Outline & Foundation | Direct fired absorption chiller & heater

## WCDN

1. The foundation and the floor must be sufficiently strong to support the unit weight.
2. Provide a floor drain near chiller foundation.
3. Only if foundation anchoring is required, anchor bolts, nuts and washers, shall be supplied together with chiller. Anchor bolts must be fixed on the foundation prior to chiller installation.
4. Unit must be leveled before startup.  
(Horizontal level must be below than 2mm/1,000mm)

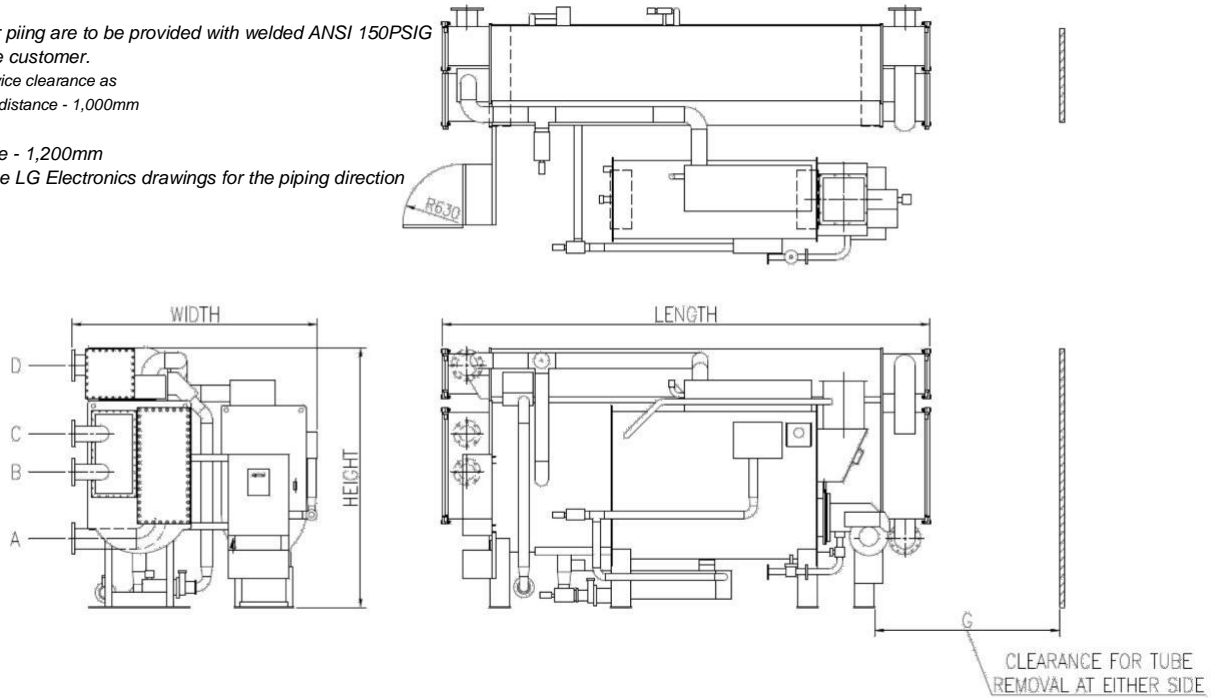


Model	Dimension(mm)		Weight(ton)			
	A	B	C	D	E	Total
WCDN010	2,400	1,800	1.7	0.8	1.0	5.1
WCDN012	2,600	1,800	1.9	0.8	1.0	5.5
WCDN015	3,300	1,900	2.4	0.9	1.1	6.7
WCDN018	3,300	1,900	2.6	1.0	1.2	7.2
WCDN021	3,300	2,100	3.2	1.2	1.4	8.8
WCDN024	3,300	2,100	3.3	1.2	1.4	9.2
WCDN028	4,400	2,100	4.1	1.2	1.4	10.8
WCDN032	4,400	2,100	4.4	1.3	1.5	11.5
WCDN036	4,400	2,400	5.2	1.6	2.0	13.8
WCDN040	4,400	2,400	5.5	1.7	2.1	14.6
WCDN045	4,400	2,600	6.4	2.0	2.4	17.1
WCDN050	4,400	2,600	6.7	2.1	2.5	18.0
WCDN056	4,400	3,300	9.1	2.7	3.1	24.0
WCDN063	4,900	3,300	10.0	3.0	3.4	26.3
WCDN070	5,400	3,300	10.5	3.3	3.7	27.8

# Outline & Foundation | Direct fired absorption chiller & heater

## WCDN(3)

1. All external water piping are to be provided with welded ANSI 150PSIG RF flanges by the customer.
2. Installation and service clearance as follows :  
 Logitudinal distance - 1,000mm  
 Top - 200mm  
 Control panel side - 1,200mm
3. Please refer to the LG Electronics drawings for the piping direction

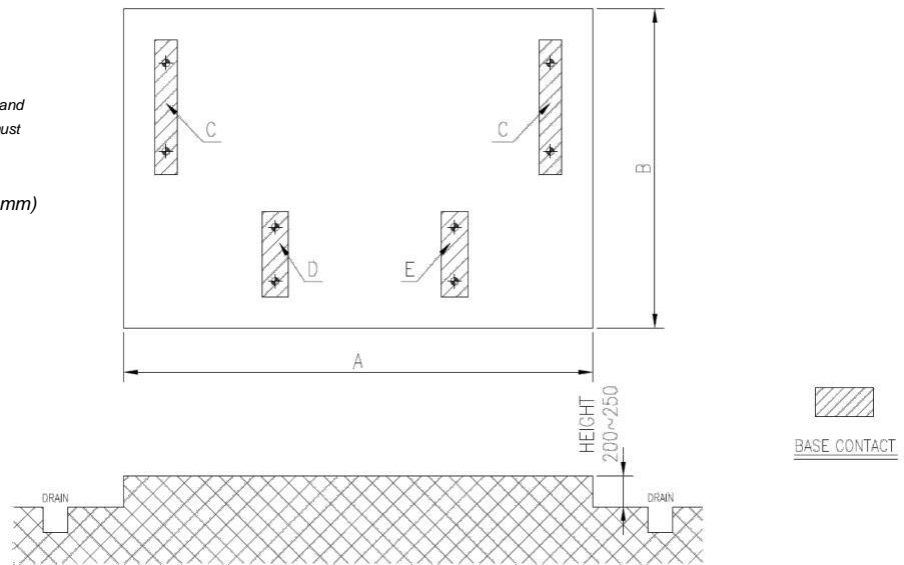


Model	Dimension(mm)			Nozzle connection(B)				Clearance(mm)
	Length	Width	Height	A	B	C	D	G
WCDN010	3,165	2,000	2,070	5	4	4	5	2,400
WCDN012	3,165	2,045	2,070	5	4	4	5	2,400
WCDN015	3,745	2,095	2,070	5	4	4	5	3,400
WCDN018	3,665	2,095	2,070	5	4	4	5	3,400
WCDN021	3,705	2,150	2,415	6	5	5	6	3,400
WCDN024	3,795	2,170	2,415	6	5	5	6	3,400
WCDN028	4,725	2,320	2,415	8	6	6	8	4,500
WCDN032	4,725	2,260	2,415	8	6	6	8	4,500
WCDN036	4,890	2,425	2,590	8	6	6	8	4,500
WCDN040	4,890	2,545	2,590	8	6	6	8	4,500
WCDN045	4,900	2,840	2,925	10	8	8	10	4,500
WCDN050	5,205	2,840	2,925	10	8	8	10	4,500
WCDN056	5,050	3,350	3,295	12	8	8	12	4,500
WCDN063	5,495	3,275	3,295	12	8	8	12	5,200
WCDN070	6,005	3,255	3,295	12	8	8	12	5,700
WCDN080	5,635	3,945	3,600	14	10	10	14	5,200
WCDN090	6,160	4,140	3,600	14	10	10	14	5,700
WCDN100	6,600	3,920	3,600	14	10	10	14	6,200
WCDN110	6,140	4,530	3,800	16	12	12	16	5,700
WCDN120	6,800	4,500	3,800	16	12	12	16	6,200
WCDN130	7,160	4,500	3,800	16	12	12	16	6,700
WCDN140	6,800	4,700	4,040	16	14	14	16	6,200
WCDN150	7,160	4,850	4,040	16	14	14	16	6,700

# Outline & Foundation | Direct fired absorption chiller & heater

## WCDN(3)

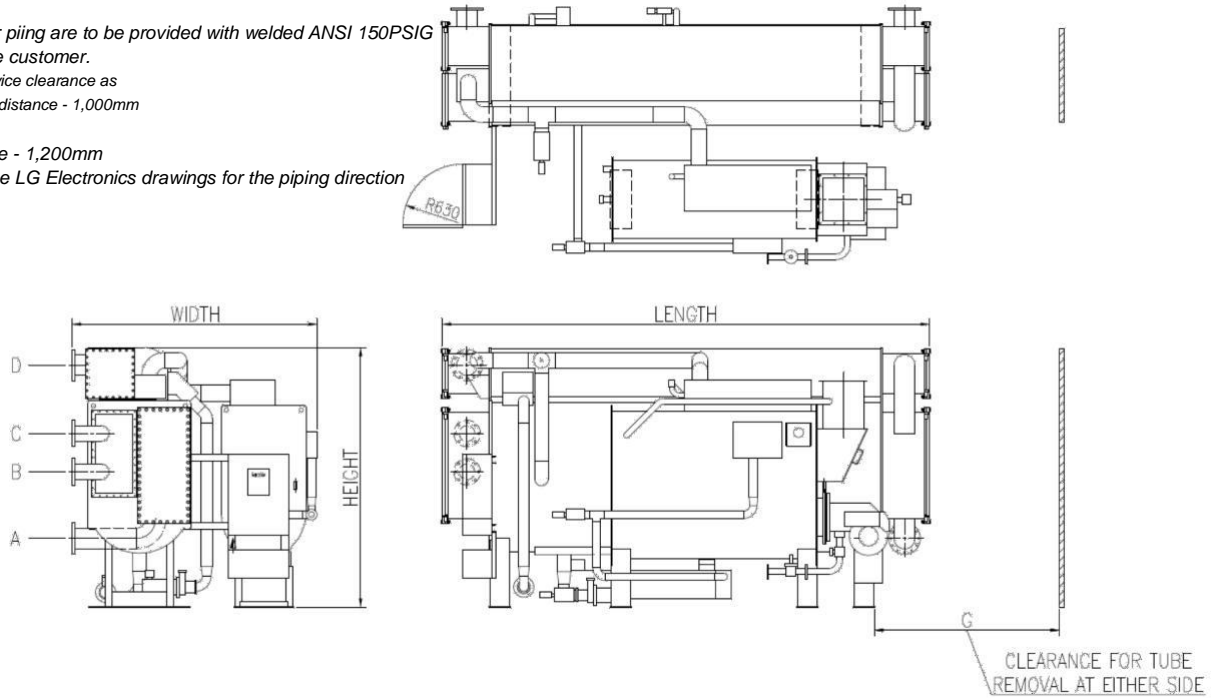
1. The foundation and the floor must be sufficiently strong to support the unit weight.
2. Provide a floor drain near chiller foundation.
3. Only if foundation anchoring is required, anchor bolts, nuts and washers, shall be supplied together with chiller. Anchor bolts must be fixed on the foundation prior to chiller installation.
4. Unit must be leveled before startup.  
(Horizontal level must be below than 2mm/1,000mm)



Model	Dimension(mm)		Weight(ton)			
	A	B	C	D	E	Total
WCDN010	2,300	2,000	1.6	0.8	1.0	4.9
WCDN012	2,300	2,100	1.8	0.8	1.0	5.3
WCDN015	3,300	2,100	2.3	0.9	1.1	6.4
WCDN018	3,300	2,100	2.5	1.0	1.2	7.0
WCDN021	3,300	2,150	2.8	1.2	1.4	8.1
WCDN024	3,300	2,150	3.0	1.2	1.4	8.6
WCDN028	4,500	2,250	3.8	1.2	1.4	10.2
WCDN032	4,500	2,250	4.1	1.3	1.5	11.0
WCDN036	4,500	2,650	4.6	1.6	2.0	12.6
WCDN040	4,500	2,650	4.9	1.7	2.1	13.5
WCDN045	4,500	3,000	5.8	2.0	2.4	15.9
WCDN050	4,500	3,000	6.5	2.1	2.5	17.6
WCDN056	4,500	3,300	7.9	2.7	3.1	21.5
WCDN063	5,500	3,300	9.2	3.0	3.4	24.7
WCDN070	5,550	3,300	10.3	3.5	3.9	27.9
WCDN080	5,500	3,300	12.0	4.4	4.9	33.2
WCDN090	5,500	3,300	12.6	5.2	5.7	36.0
WCDN100	6,000	4,000	13.1	6.1	6.7	39.0
WCDN110	6,000	4,000	13.8	7.0	7.6	42.2
WCDN120	6,000	4,000	14.8	8.2	8.6	46.3
WCDN130	6,000	4,000	16.1	9.2	9.7	51.0
WCDN140	6,600	4,500	17.1	10.1	10.5	54.8
WCDN150	6,600	4,500	18.0	11.2	11.8	59.0

## WCDS

1. All external water piping are to be provided with welded ANSI 150PSIG RF flanges by the customer.
2. Installation and service clearance as follows : Longitudinal distance - 1,000mm  
Top - 200mm  
Control panel side - 1,200mm
3. Please refer to the LG Electronics drawings for the piping direction

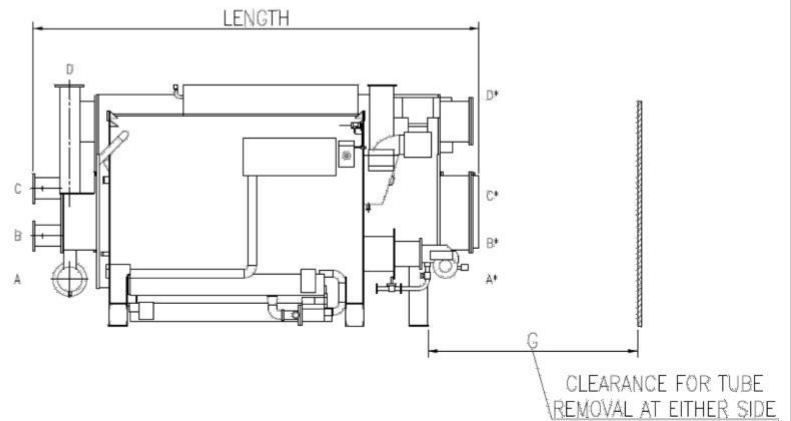
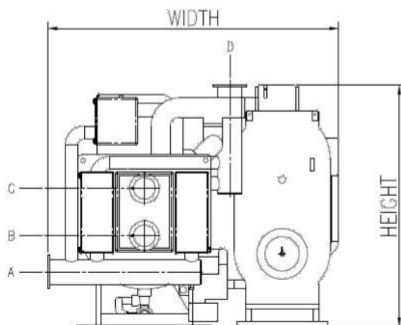
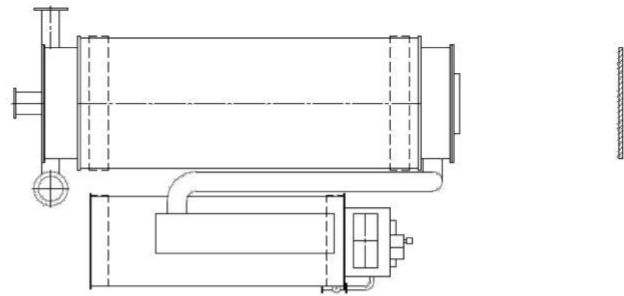


Model	Dimension(mm)			Nozzle connection(B)				Clearance(mm)
	Length	Width	Height	A	B	C	D	G
WCDS010S	2,700	1,990	2,030	5	4	4	5	2,400
WCDS012S	2,700	1,990	2,030	5	4	4	5	2,400
WCDS015S	3,720	1,990	2,030	5	4	4	5	3,400
WCDS018S	3,720	2,010	2,030	5	4	4	5	3,400
WCDS021S	3,740	2,190	2,300	6	5	5	6	3,400
WCDS024S	3,740	2,210	2,300	6	5	5	6	3,400
WCDS028S	4,780	2,170	2,300	8	6	6	8	4,500
WCDS032S	4,780	2,170	2,300	8	6	6	8	4,500
WCDS036S	4,890	2,310	2,540	8	6	6	8	4,500
WCDS040S	4,890	2,350	2,540	8	6	6	8	4,500
WCDS045S	4,870	2,570	2,765	10	8	8	10	4,500
WCDS050S	4,870	2,570	2,765	10	8	8	10	4,500
WCDS056S	5,060	3,280	3,066	12	8	8	12	4,600
WCDS063S	5,600	3,280	3,066	12	8	8	12	5,200
WCDS070S	6,100	3,280	3,066	12	8	8	12	5,700
WCDS080S	5,740	3,400	3,600	14	10	10	14	5,200
WCDS090S	6,240	3,400	3,600	14	10	10	14	5,700
WCDS100S	6,760	3,400	3,600	14	10	10	14	6,200



## WCDS

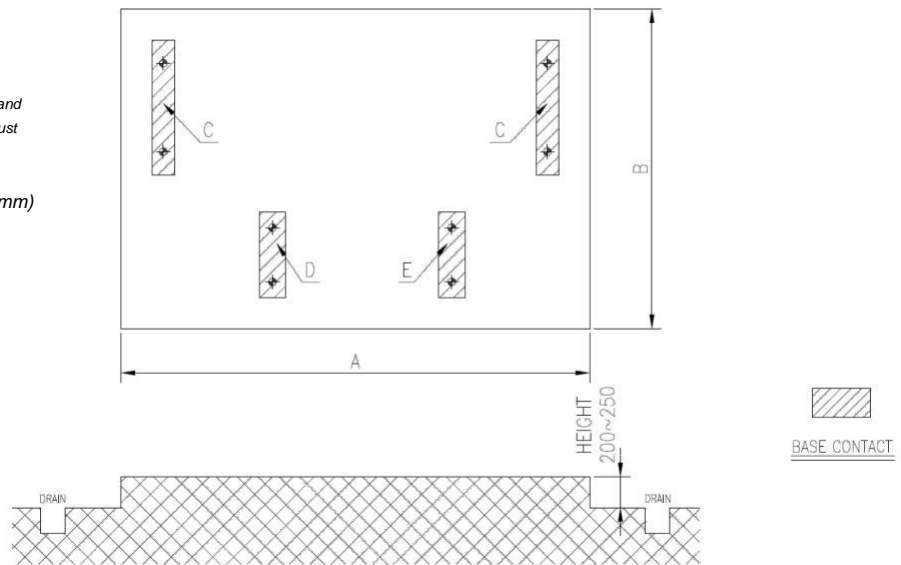
1. All external water piping are to be provided with welded ANSI 150PSIG RF flanges by the customer.
2. Installation and service clearance as follows : Logitudinal distance - 1,000mm  
Top - 200mm  
Control panel side - 1,200mm
3. Please refer to the LG Electronics drawings for the piping direction



Model	Dimension(mm)			Nozzle connection(B)				Clearance(mm)
	Length	Width	Height	A	B	C	D	G
WCDS110S	6,170	4,180	3,600	16	12	12	16	5,700
WCDS120S	6,690	4,180	3,600	16	12	12	16	6,200
WCDS130S	7,190	4,180	3,600	16	12	12	16	6,700
WCDS140S	6,850	4,590	3,800	16	14	14	16	6,200
WCDS150S	7,350	4,590	3,800	16	14	14	16	6,200

## WCDS

1. The foundation and the floor must be sufficiently strong to support the unit weight.
2. Provide a floor drain near chiller foundation.
3. Only if foundation anchoring is required, anchor bolts, nuts and washers, shall be supplied together with chiller. Anchor bolts must be fixed on the foundation prior to chiller installation.
4. Unit must be leveled before startup.  
(Horizontal level must be below than 2mm/1,000mm)



Model	Dimension(mm)		Weight(ton)			Total
	A	B	C	D	E	
WCDS010S	2,300	1,700	1.6	0.7	0.9	4.8
WCDS012S	2,300	1,700	1.7	0.8	0.9	5.1
WCDS015S	3,300	1,800	2.1	0.9	1.0	6.1
WCDS018S	3,300	1,800	2.3	1.0	1.1	6.7
WCDS021S	3,300	1,950	2.7	1.1	1.4	7.9
WCDS024S	3,300	1,950	2.8	1.2	1.4	8.2
WCDS028S	4,350	1,900	3.3	1.2	1.4	9.2
WCDS032S	4,350	1,900	3.5	1.3	1.5	9.8
WCDS036S	4,350	2,000	4.4	1.7	1.8	12.3
WCDS040S	4,350	2,000	4.5	1.8	1.9	12.7
WCDS045S	4,350	2,250	5.7	2.4	2.6	16.4
WCDS050S	4,350	2,250	5.8	2.8	3.0	17.4
WCDS056S	4,350	2,750	7.7	2.7	3.1	21.2
WCDS063S	4,900	2,750	8.3	3.0	3.3	22.9
WCDS070S	5,400	2,750	8.9	3.3	3.6	24.7
WCDS080S	4,900	3,100	12.4	4.1	4.6	33.5
WCDS090S	5,400	3,100	13.2	4.6	5.1	36.1
WCDS100S	5,900	3,100	14.1	5.2	5.5	38.9
WCDS110S	5,000	3,650	15.6	6.4	6.7	44.3
WCDS120S	5,500	3,650	16.7	6.9	7.3	47.6
WCDS130S	6,000	3,650	17.6	7.5	7.9	50.6
WCDS140S	5,500	4,000	19.3	8.3	8.6	55.5
WCDS150S	6,000	4,000	20.4	8.7	9.0	58.5

# Outline & Foundation

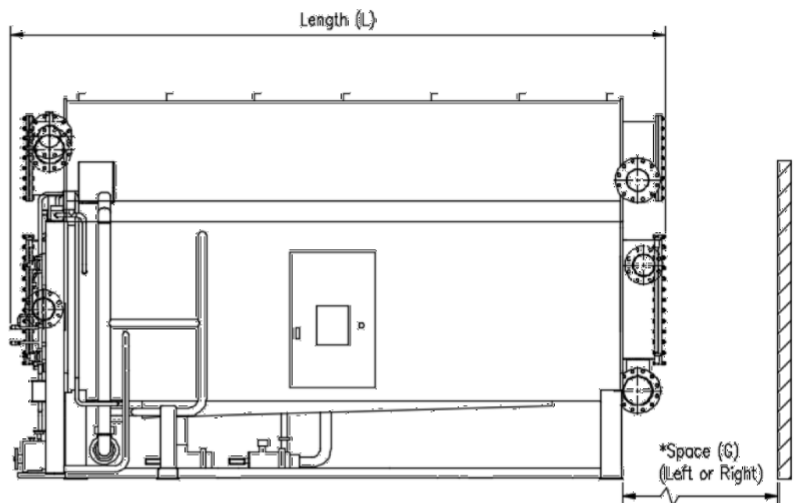
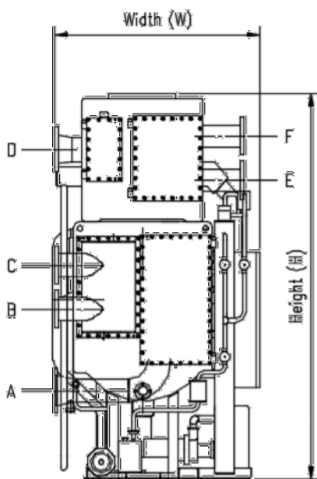
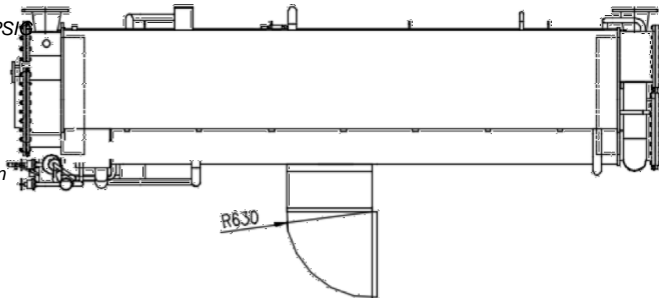
Hot water fired absorption chiller



Life's Good

## WCMH

1. All external water piping are to be provided with welded ANSI 150PSI RF flanges by the customer.
2. Installation and service clearance as follows : Longitudinal distance - 1,000mm  
Top - 200mm  
Control panel side - 1,200mm
3. Please refer to the LG Electronics drawings for the piping direction



Model	Dimension (mm)			Nozzle Connection (B)						Clearance (mm)
	Length (L)	Width (W)	Height (H)	A	B	C	D	E	F	
WCMH008	2,790	1,760	2,450	4	3	3	4	2	2	2,400
WCMH009	2,790	1,760	2,450	4	3	3	4	2	2	2,400
WCMH011	3,680	1,760	2,450	5	4	4	5	2 1/2	2 1/2	3,400
WCMH014	3,680	1,760	2,450	5	4	4	5	2 1/2	2 1/2	3,400
WCMH016	3,850	1,760	2,840	6	5	5	6	3	3	3,400
WCMH018	3,850	1,760	2,840	6	5	5	6	3	3	3,400
WCMH021	4,870	1,760	2,840	8	5	5	8	3	3	4,500
WCMH024	4,870	1,760	2,840	8	5	5	8	3	3	4,500
WCMH027	4,870	2,000	2,940	8	6	6	8	4	4	4,500
WCMH030	4,870	2,000	2,940	8	6	6	8	4	4	4,500
WCMH034	4,930	2,090	3,310	10	8	8	10	4	4	4,500
WCMH038	4,930	2,090	3,310	10	8	8	10	4	4	4,500
WCMH042	5,040	2,310	3,570	10	8	8	10	5	5	4,500
WCMH047	5,580	2,310	3,570	10	8	8	10	5	5	5,200
WCMH053	6,080	2,310	3,570	10	8	8	10	5	5	5,700
WCMH060	5,680	2,650	3,920	12	10	10	12	6	6	5,200
WCMH068	6,180	2,650	3,920	12	10	10	12	6	6	5,700
WCMH075	6,700	2,650	3,920	12	10	10	12	6	6	6,200
WCMH083	6,270	4,070	3,180	14	12	12	14	6	6	5,700
WCMH090	6,795	4,070	3,180	14	12	12	14	6	6	6,200
WCMH098	7,295	4,070	3,180	14	12	12	14	6	6	6,700
WCMH105	6,880	4,500	3,180	16	12	12	16	8	8	6,200
WCMH113	7,380	4,500	3,180	16	12	12	16	8	8	6,700
WCMH120	7,840	4,500	3,180	18	14	14	18	8	8	7,400
WCMH135	8,320	4,500	3,180	18	14	14	18	8	8	8,000



# Outline & Foundation

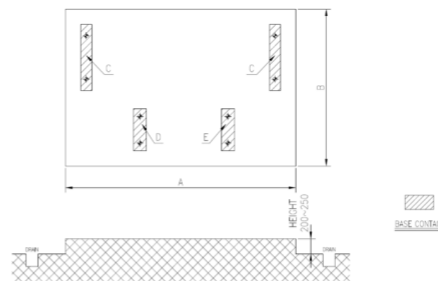
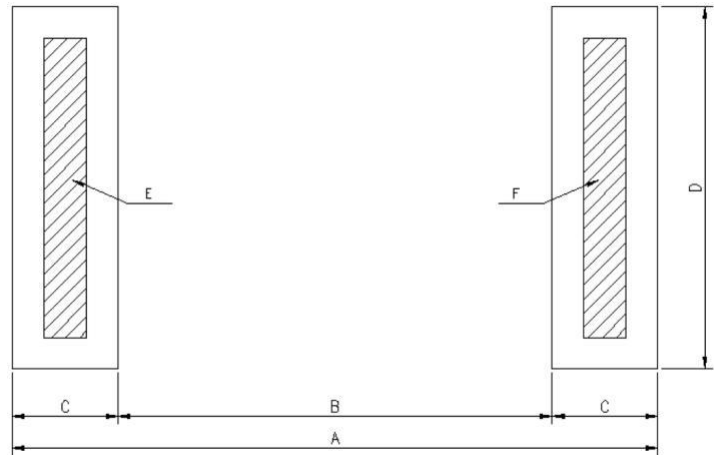
Hot water fired absorption chiller



Life's Good

## WCMH

1. The foundation and the floor must be sufficiently strong to support the unit weight.
2. Provide a floor drain near chiller foundation.
3. Only if foundation anchoring is required, anchor bolts, nuts and washers, shall be supplied together with chiller. Anchor bolts must be fixed on the foundation prior to chiller installation.
4. Unit must be leveled before startup.  
(Horizontal level must be below than 2mm/1,000mm)



MODEL	Dimension (mm)				Weight (ton)		
	A	B	C	D	E	F	TOTAL
WCMH008	2,465	1,375	545	1,270	1.9	1.9	3.8
WCMH009	2,465	1,375	545	1,270	2.0	2.0	4.0
WCMH011	3,485	2,395	545	1,270	2.6	2.6	5.2
WCMH014	3,485	2,395	545	1,270	2.8	2.8	5.6
WCMH016	3,485	2,345	570	1,520	3.3	3.3	6.6
WCMH018	3,485	2,345	570	1,520	3.5	3.5	7.0
WCMH021	4,505	3,365	570	1,520	4.2	4.2	8.4
WCMH024	4,505	3,365	570	1,520	4.4	4.4	8.8
WCMH027	4,505	3,265	620	1,580	5.6	5.6	11.2
WCMH030	4,505	3,265	620	1,580	5.9	5.9	11.8
WCMH034	4,505	3,265	620	1,680	7.1	7.1	14.2
WCMH038	4,505	3,265	620	1,680	7.4	7.4	14.8
WCMH042	4,505	3,165	670	1,960	9.9	9.9	19.8
WCMH047	5,050	3,710	670	1,960	10.7	10.7	21.4
WCMH053	5,545	4,205	670	1,960	11.3	11.3	22.6
WCMH060	5,050	3,610	720	2,000	14.3	14.3	28.6
WCMH068	5,545	4,105	720	2,000	15.3	15.3	30.6
WCMH075	6,070	4,630	720	2,000	16.5	16.5	33.0
WCMH083	5,145	3,705	720	3,720	17.9	17.9	35.8
WCMH090	5,670	4,230	720	3,720	18.5	18.5	37.0
WCMH098	6,170	4,730	720	3,720	19.7	19.7	39.4
WCMH105	5,670	4,230	720	4,230	21.6	21.6	43.2
WCMH113	6,170	4,730	720	4,230	23.3	23.3	46.6
WCMH120	6,690	5,250	720	4,230	23.8	23.8	47.6
WCMH135	7,170	5,730	720	4,230	26.3	26.3	52.6



# Outline & Foundation

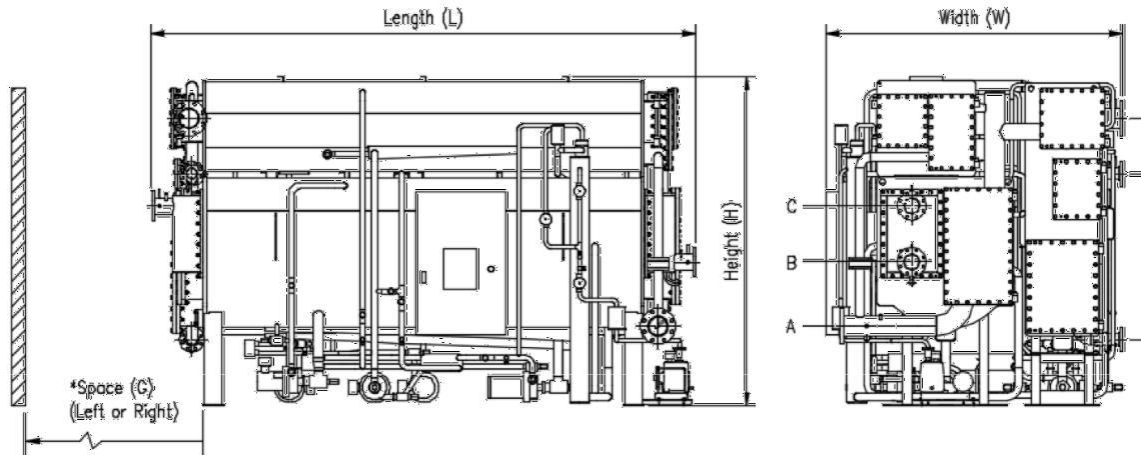
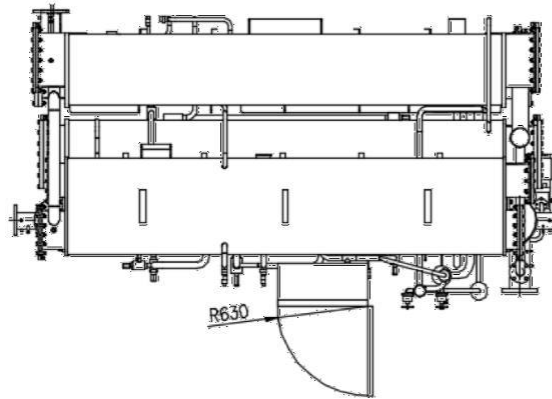
Hot water fired absorption chiller



Life's Good

## WC2H / WC2N

1. All external water piping are to be provided with welded ANSI 150PSIG RF flanges by the customer.
2. Installation and service clearance as follows : Logitudinal distance - 1,000mm  
Top - 200mm  
Control panel side - 1,200mm
3. Please refer to the LG Electronics drawings for the piping direction



Model	Dimension (mm)			Nozzle Connection (B)							Clearance (mm)
	Length (L)	Width (W)	Height (H)	A	B	C	D	E	F	G	
WC2H/WC2N008	2,790	2,180	2,310	4	3	3	2	2	4	2,400	
WC2H/WC2N009	2,790	2,180	2,310	4	3	3	2	2	4	2,400	
WC2H/WC2N011	3,680	2,090	2,310	5	4	4	2 1/2	2 1/2	5	3,400	
WC2H/WC2N014	3,680	2,090	2,310	5	4	4	2 1/2	2 1/2	5	3,400	
WC2H/WC2N016	3,850	2,210	2,675	6	5	5	3	3	6	3,400	
WC2H/WC2N018	3,850	2,210	2,675	6	5	5	3	3	6	3,400	
WC2H/WC2N021	4,870	2,210	2,675	8	5	5	3	3	8	4,500	
WC2H/WC2N024	4,870	2,210	2,675	8	5	5	3	3	8	4,500	
WC2H/WC2N027	4,870	2,500	2,770	8	6	6	4	4	8	4,500	
WC2H/WC2N030	4,870	2,500	2,770	8	6	6	4	4	8	4,500	
WC2H/WC2N034	4,930	2,710	3,120	10	8	8	4	4	10	4,500	
WC2H/WC2N038	4,930	2,710	3,120	10	8	8	4	4	10	4,500	
WC2H/WC2N042	5,040	2,940	3,370	10	8	8	4	4	10	4,500	
WC2H/WC2N047	5,580	2,940	3,370	10	8	8	4	4	10	5,200	
WC2H/WC2N053	6,080	2,940	3,370	10	8	8	4	4	10	5,700	
WC2H/WC2N060	5,680	3,400	3,725	12	10	10	5	5	12	5,200	
WC2H/WC2N068	6,180	3,400	3,725	12	10	10	5	5	12	5,700	
WC2H/WC2N075	6,700	3,400	3,725	12	10	10	5	5	12	6,200	
WC2H/WC2N083	6,270	4,070	3,890	14	12	12	5	5	14	5,700	
WC2H/WC2N090	6,795	4,070	3,890	14	12	12	5	5	14	6,200	
WC2H/WC2N098	7,295	4,070	3,890	14	12	12	5	5	14	6,700	
WC2H/WC2N105	6,880	4,500	4,080	16	12	12	6	6	16	6,200	
WC2H/WC2N113	7,380	4,500	4,080	16	12	12	6	6	16	6,700	
WC2H/WC2N120	7,840	4,500	4,080	18	14	14	6	6	18	7,400	
WC2H/WC2N135	8,320	4,500	4,080	18	14	14	6	6	18	8,000	





# Outline & Foundation

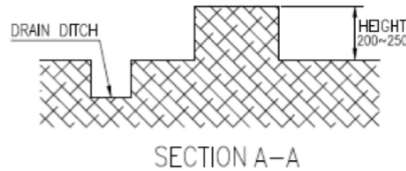
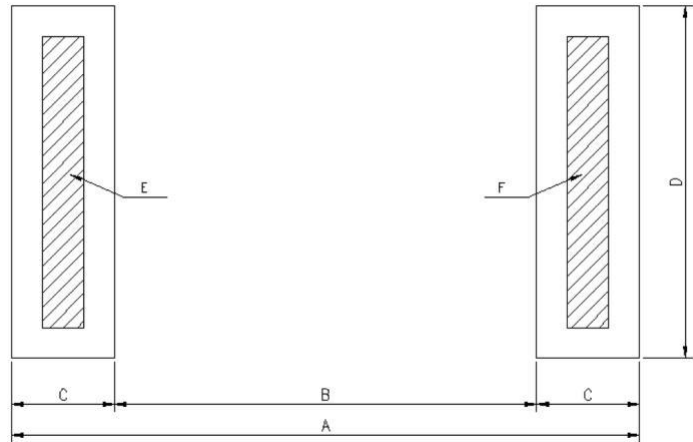
Hot water fired absorption chiller



Life's Good

## WC2H / WC2N

1. The foundation and the floor must be sufficiently strong to support the unit weight.
2. Provide a floor drain near chiller foundation.
3. Only if foundation anchoring is required, anchor bolts, nuts and washers, shall be supplied together with chiller. Anchor bolts must be fixed on the foundation prior to chiller installation.
4. Unit must be leveled before startup.  
(Horizontal level must be below than 2mm/1,000mm)

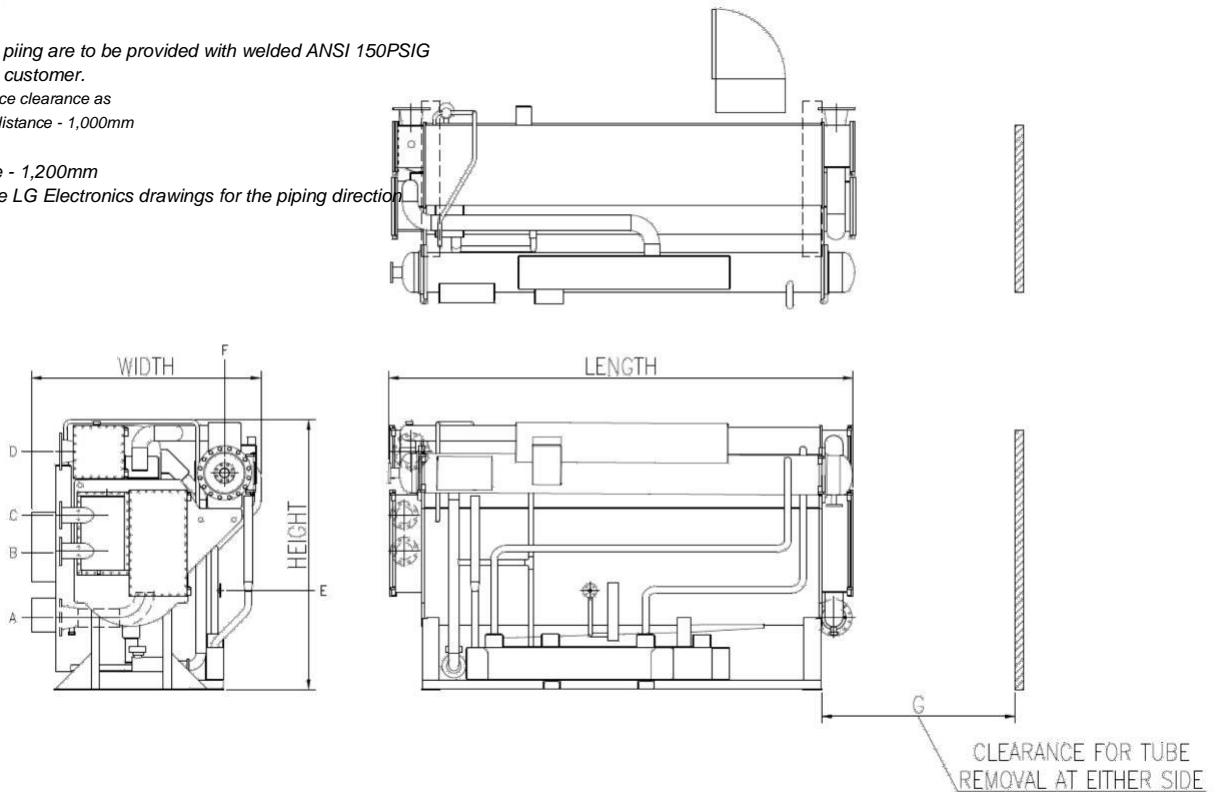


MODEL	Dimension (mm)				Weight (ton)		
	A	B	C	D	E	F	TOTAL
WC2H/WC2N008	2,465	1,375	545	1,960	2.6	2.6	5.2
WC2H/WC2N009	2,465	1,375	545	1,960	2.7	2.7	5.4
WC2H/WC2N011	3,485	2,395	545	1,960	3.4	3.4	6.8
WC2H/WC2N014	3,485	2,395	545	1,960	3.7	3.7	7.4
WC2H/WC2N016	3,485	2,345	570	2,080	4.4	4.4	8.8
WC2H/WC2N018	3,485	2,345	570	2,080	4.7	4.7	9.4
WC2H/WC2N021	4,505	3,365	570	2,080	5.5	5.5	11.0
WC2H/WC2N024	4,505	3,365	570	2,080	5.9	5.9	11.8
WC2H/WC2N027	4,505	3,265	620	2,350	7.4	7.4	14.8
WC2H/WC2N030	4,505	3,265	620	2,350	8.0	8.0	16.0
WC2H/WC2N034	4,505	3,265	620	2,540	9.4	9.4	18.8
WC2H/WC2N038	4,505	3,265	620	2,540	9.9	9.9	19.8
WC2H/WC2N042	4,505	3,165	670	2,790	13.1	13.1	26.2
WC2H/WC2N047	5,050	3,710	670	2,790	14.2	14.2	28.4
WC2H/WC2N053	5,545	4,205	670	2,790	15.1	15.1	30.2
WC2H/WC2N060	5,050	3,610	720	3,200	18.2	18.2	36.4
WC2H/WC2N068	5,545	4,105	720	3,200	19.8	19.8	39.6
WC2H/WC2N075	6,070	4,630	720	3,200	21.3	21.3	42.6
WC2H/WC2N083	5,145	3,705	720	3,720	23.7	23.7	47.4
WC2H/WC2N090	5,670	4,230	720	3,720	24.7	24.7	49.4
WC2H/WC2N098	6,170	4,730	720	3,720	26.2	26.2	52.4
WC2H/WC2N105	5,670	4,230	720	4,230	29.2	29.2	58.4
WC2H/WC2N113	6,170	4,730	720	4,230	31.3	31.3	62.6
WC2H/WC2N120	6,690	5,250	720	4,230	32.4	32.4	64.8
WC2H/WC2N135	7,170	5,730	720	4,230	35.6	35.6	71.2

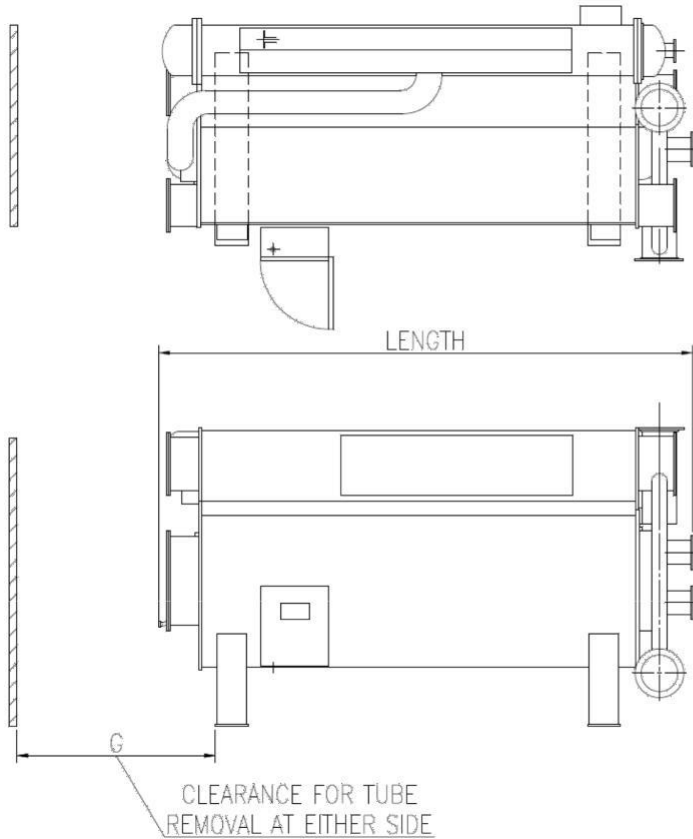


## WCSS

1. All external water piping are to be provided with welded ANSI 150PSIG RF flanges by the customer.
2. Installation and service clearance as follows : Logitudinal distance - 1,000mm  
Top - 200mm  
Control panel side - 1,200mm
3. Please refer to the LG Electronics drawings for the piping direction.

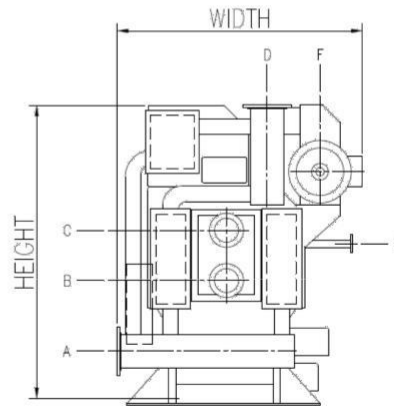


Model	Dimension(mm)			Nozzle connection (B)						Clearance (mm)
	Length	Width	Height	A	B	C	D	E	F	
WCSS010	2,650	1,775	2,030	5	4	4	5	1	2	2,400
WCSS012	2,650	1,775	2,030	5	4	4	5	1	2	2,400
WCSS015	3,670	1,775	2,030	5	4	4	5	1	2	3,400
WCSS018	3,670	1,775	2,030	5	4	4	5	1	2	3,400
WCSS021	3,730	1,880	2,300	6	5	5	6	1	2 1/2	3,400
WCSS024	3,730	1,880	2,300	6	5	5	6	1	2 1/2	3,400
WCSS028	4,750	1,880	2,300	8	6	6	8	1	2 1/2	4,500
WCSS032	4,750	1,880	2,300	8	6	6	8	1	2 1/2	4,500
WCSS036	4,850	2,110	2,550	8	6	6	8	1 1/2	3	4,500
WCSS040	4,850	2,110	2,550	8	6	6	8	1 1/2	3	4,500
WCSS045	4,850	2,250	2,780	10	8	8	10	1 1/2	3	4,500
WCSS050	4,850	2,250	2,780	10	8	8	10	1 1/2	3	4,500
WCSS056	5,060	2,480	3,000	12	8	8	12	2	4	4,600
WCSS063	5,600	2,480	3,000	12	8	8	12	2	4	5,200
WCSS070	6,100	2,480	3,000	12	8	8	12	2	4	5,700
WCSS080	5,710	2,825	3,400	14	10	10	14	2 1/2	5	5,200
WCSS090	6,210	2,825	3,400	14	10	10	14	2 1/2	5	5,700
WCSS100	6,730	2,825	3,400	14	10	10	14	2 1/2	5	6,200



## WCSS

1. All external water piping are to be provided with welded ANSI 150PSIG RF flanges by the customer.
2. Installation and service clearance as follows :  
 Logitudinal distance - 1,000mm  
 Top - 200mm  
 Control panel side - 1,200mm
3. Please refer to the LG Electronics drawings for the piping direction

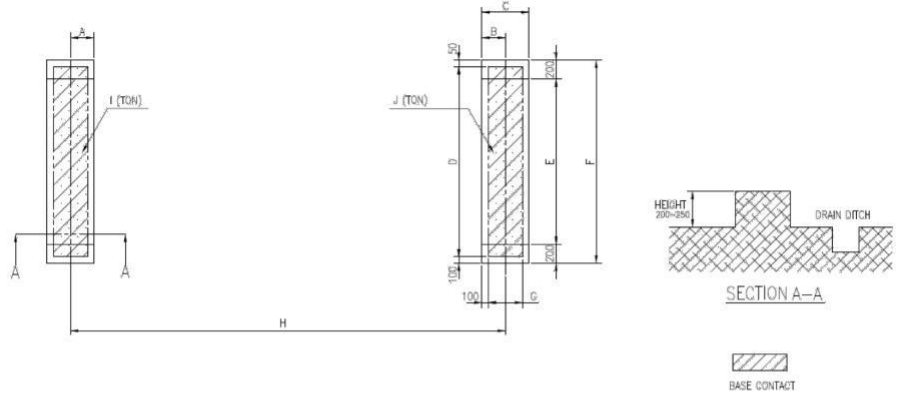


Model	Dimension(mm)			Nozzle connection (B)						Clearance (mm)
	Length	Width	Height	A	B	C	D	E	F	
WCSS110	6,170	3,000	3,600	16	12	12	16	3	6	5,800
WCSS120	6,690	3,000	3,600	16	12	12	16	3	6	6,300
WCSS130	7,180	3,000	3,600	16	12	12	16	3	6	6,800
WCSS140	6,830	3,250	3,650	16	14	14	16	3	6	6,300
WCSS150	7,330	3,250	3,650	16	14	14	16	3	6	6,800

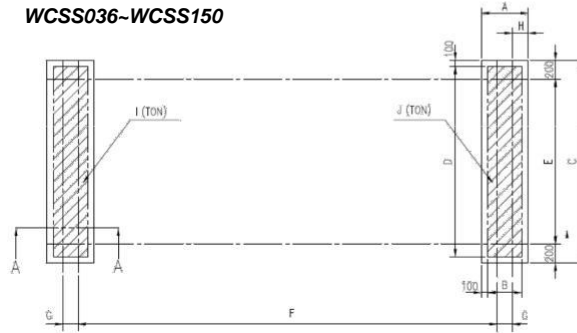
## WCSS010~WCSS032 WCSS036~WCSS150

1. The foundation and the floor must be sufficiently strong to support the unit weight.
2. Provide a floor drain near chiller foundation.
3. Only if foundation anchoring is required, anchor bolts, nuts and washers, shall be supplied together with chiller. Anchor bolts must be fixed on the foundation prior to chiller installation.
4. Unit must be leveled before startup.  
(Horizontal level must be below than 2mm/1,000mm)

WCSS010~WCSS032



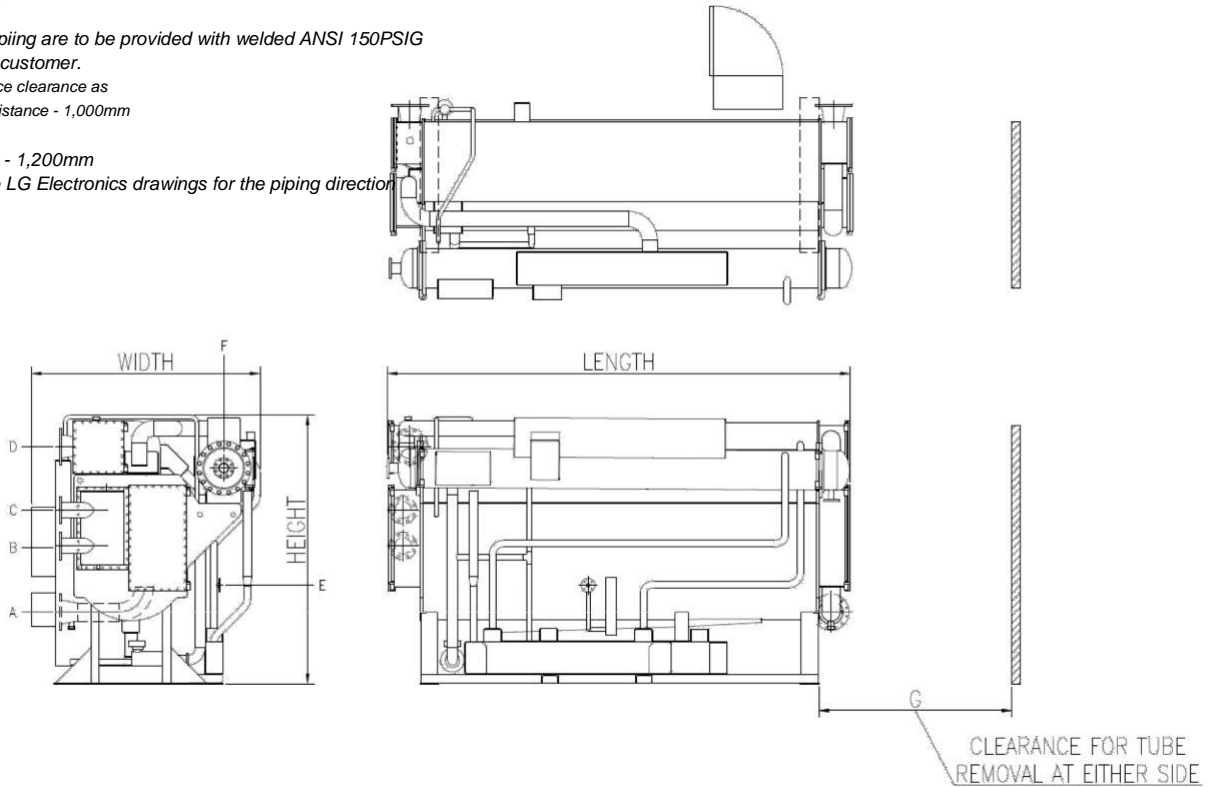
WCSS036~WCSS150



Model	Dimension(mm)								Weight(ton)	
	A	B	C	D	E	F	G	H	I	J
WCSS010	210	210	420	1,160	960	1,360	220	1,846	2.1	2.1
WCSS012	210	210	420	1,160	960	1,360	220	1,846	2.2	2.2
WCSS015	210	210	420	1,160	960	1,360	220	2,866	2.8	2.8
WCSS018	210	210	420	1,160	960	1,360	220	2,866	2.9	2.9
WCSS021	235	235	470	1,460	1,260	1,660	270	2,816	3.4	3.4
WCSS024	235	235	470	1,460	1,260	1,660	270	2,816	3.6	3.6
WCSS028	235	235	470	1,460	1,260	1,660	270	3,836	4.2	4.2
WCSS032	235	235	470	1,460	1,260	1,660	270	3,836	4.4	4.4
WCSS036	470	270	1,760	1,560	1,360	3,716	120	175	5.4	5.4
WCSS040	470	270	1,760	1,560	1,360	3,716	120	175	5.6	5.6
WCSS045	470	270	1,860	1,660	1,460	3,716	120	175	6.6	6.6
WCSS050	470	270	1,860	1,660	1,460	3,716	120	175	6.8	6.8
WCSS056	470	270	2,060	1,860	1,660	3,706	130	170	9.1	9.1
WCSS063	470	270	2,060	1,860	1,660	4,248	130	170	9.9	9.9
WCSS070	470	270	2,060	1,860	1,660	4,746	130	170	10.7	10.7
WCSS080	520	320	2,300	2,100	1,900	4,188	140	190	14.1	14.1
WCSS090	520	320	2,300	2,100	1,900	4,686	140	190	15.1	15.1
WCSS100	520	320	2,300	2,100	1,900	5,211	140	190	16.1	16.1
WCSS110	520	320	2,500	2,300	2,100	4,286	140	190	17.9	17.9
WCSS120	520	320	2,500	2,300	2,100	4,811	140	190	19.0	19.0
WCSS130	520	320	2,500	2,300	2,100	5,311	140	190	20.1	20.1
WCSS140	520	320	2,700	2,500	2,300	4,811	140	190	22.2	22.2
WCSS150	520	320	2,700	2,500	2,300	5,311	140	190	23.4	23.4

## WCSH

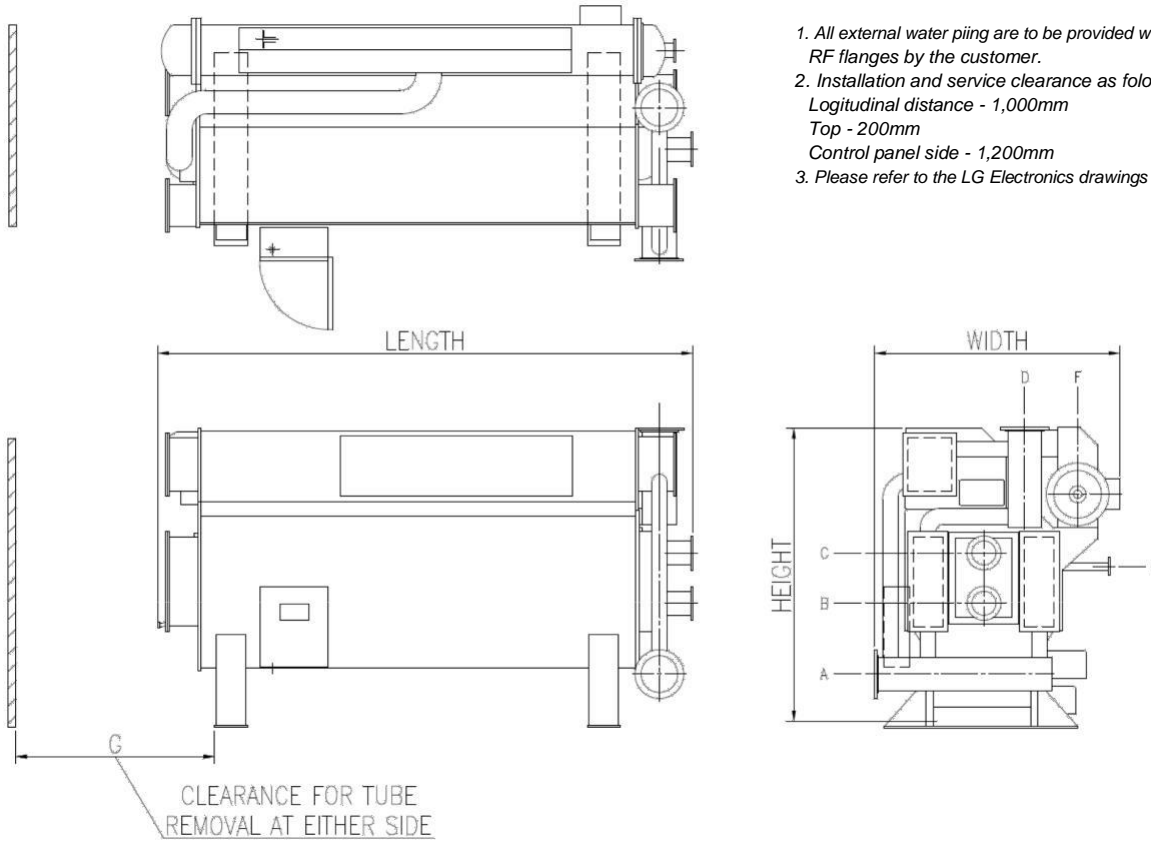
1. All external water piping are to be provided with welded ANSI 150PSIG RF flanges by the customer.
2. Installation and service clearance as follows : Longitudinal distance - 1,000mm  
Top - 200mm  
Control panel side - 1,200mm
3. Please refer to the LG Electronics drawings for the piping direction



Model	Dimension(mm)			Nozzle connection (B)						Clearance (mm)
	Length	Width	Height	A	B	C	D	E	F	
WCSH010	2,750	1,930	2,065	5	4	4	5	1	2	2,400
WCSH012	2,750	1,930	2,065	5	4	4	5	1	2	2,400
WCSH015	3,720	1,930	2,070	5	4	4	5	1	2	3,400
WCSH018	3,720	1,930	2,110	5	4	4	5	1	2	3,400
WCSH021	3,720	2,000	2,415	6	5	5	6	1	2	3,400
WCSH024	3,720	2,000	2,415	6	5	5	6	1	2	3,400
WCSH028	4,740	2,070	2,415	8	6	6	8	1	2 1/2	4,500
WCSH032	4,740	2,070	2,415	8	6	6	8	1	2 1/2	4,500
WCSH036	4,800	2,200	2,590	8	6	6	8	1 1/2	3	4,500
WCSH040	4,800	2,200	2,590	8	6	6	8	1 1/2	3	4,500
WCSH045	4,830	2,445	2,950	10	8	8	10	1 1/2	3	4,500
WCSH050	4,830	2,445	2,950	10	8	8	10	1 1/2	3	4,500
WCSH056	4,985	2,610	3,300	12	8	8	12	2	4	4,500
WCSH063	5,485	2,610	3,300	12	8	8	12	2	4	5,200
WCSH070	5,985	2,610	3,300	12	8	8	12	2	4	5,700

## WCSH

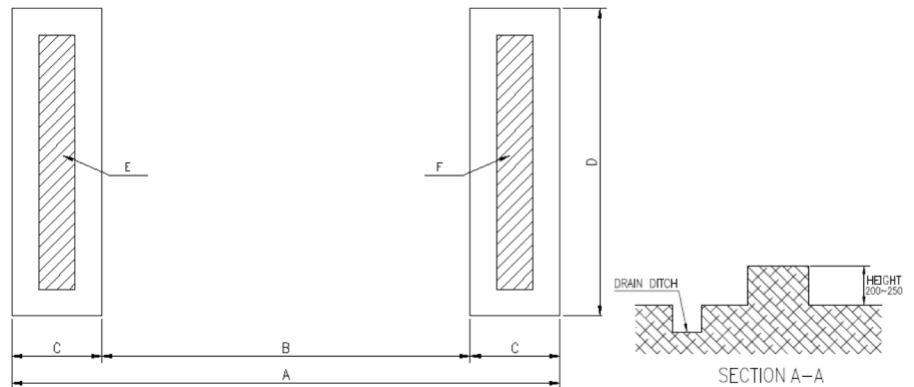
1. All external water piping are to be provided with welded ANSI 150PSIG RF flanges by the customer.
2. Installation and service clearance as follows :  
 Logitudinal distance - 1,000mm  
 Top - 200mm  
 Control panel side - 1,200mm
3. Please refer to the LG Electronics drawings for the piping direction



Model	Dimension(mm)			Nozzle connection (B)						Clearance (mm)
	Length	Width	Height	A	B	C	D	E	F	
WCSH080	5,635	3,090	3,550	14	10	10	14	2 1/2	5	5,200
WCSH090	6,130	3,090	3,550	14	10	10	14	2 1/2	5	5,700
WCSH100	6,590	3,090	3,550	14	10	10	14	2 1/2	5	6,200
WCSH110	6,140	3,180	3,820	16	12	12	16	3	6	5,700
WCSH120	6,660	3,180	3,820	16	12	12	16	3	6	6,200
WCSH130	7,160	3,180	3,820	16	12	12	16	3	6	6,700
WCSH140	6,640	3,520	3,840	16	14	14	16	3	6	6,200
WCSH150	7,140	3,520	3,840	16	14	14	16	3	6	6,700

## WCSH

1. The foundation and the floor must be sufficiently strong to support the unit weight.
2. Provide a floor drain near chiller foundation.
3. Only if foundation anchoring is required, anchor bolts, nuts and washers, shall be supplied together with chiller. Anchor bolts must be fixed on the foundation prior to chiller installation.
4. Unit must be leveled before startup.  
(Horizontal level must be below than 2mm/1,000mm)



Model	Dimension(mm)			Weight (ton)			
	A	B	C	D	E	F	Total
WCSH010	2,466	1,326	570	1,500	2.3	2.2	4.5
WCSH012	2,466	1,326	570	1,500	2.5	2.5	5.0
WCSH015	3,486	2,346	570	1,500	3.0	3.0	6.0
WCSH018	3,486	2,346	570	1,500	3.3	3.2	6.5
WCSH021	3,486	2,346	570	1,800	3.8	3.8	7.6
WCSH024	3,486	2,346	570	1,800	4.1	4.0	8.1
WCSH028	4,506	3,366	570	1,800	4.9	4.9	9.8
WCSH032	4,506	3,366	570	1,800	5.2	5.1	10.3
WCSH036	4,506	3,166	670	1,900	6.0	5.9	11.9
WCSH040	4,506	3,166	670	1,900	6.6	6.5	13.1
WCSH045	4,506	3,166	670	2,000	7.7	7.6	15.3
WCSH050	4,506	3,166	670	2,000	8.4	8.4	16.8
WCSH056	4,506	3,166	670	2,300	10.1	10.1	20.2
WCSH063	5,048	3,708	670	2,300	11.9	11.9	23.8
WCSH070	5,546	4,206	670	2,300	13.4	13.4	26.8
WCSH080	5,048	3,608	720	2,660	15.4	15.4	30.9
WCSH090	5,546	4,106	720	2,660	16.5	16.4	32.9
WCSH100	6,071	4,631	720	2,660	17.9	17.9	35.8
WCSH110	5,546	4,106	720	2,780	19.4	19.4	38.8
WCSH120	6,071	4,631	720	2,780	21.1	21.1	42.2
WCSH130	6,571	5,131	720	2,780	22.9	22.9	45.8
WCSH140	6,071	4,631	720	3,020	24.7	24.7	49.4
WCSH150	6,571	5,131	720	3,020	26.4	26.4	52.8



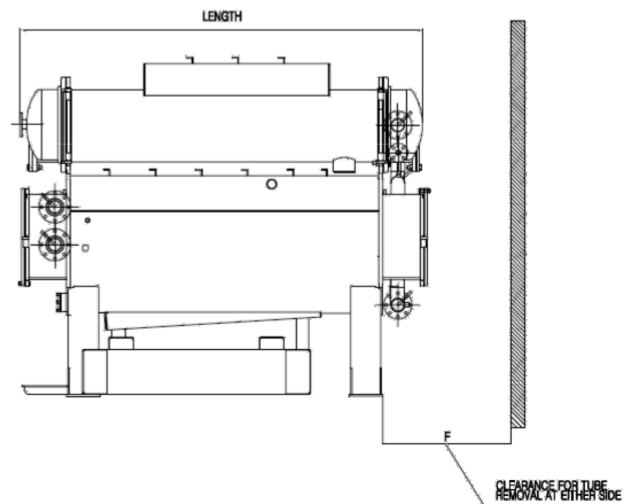
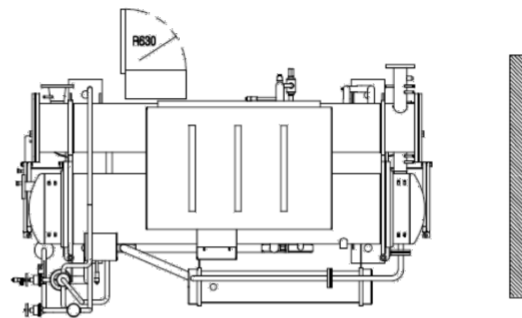
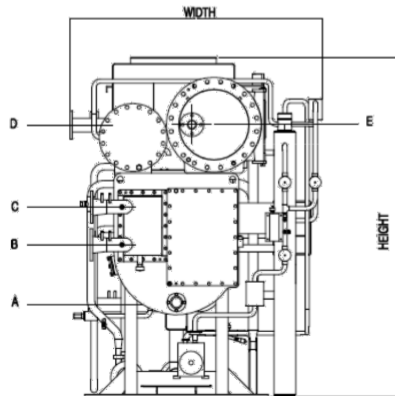
# Outline & Foundation

## Absorption heat pump - Steam

### WCPX - Steam

1. All external water piping are to be provided with welded ANSI 150PSIG RF flanges by the customer.
2. Installation and service clearance as follows : Logitudinal distance - 1,000mm  
Top - 200mm  
Control panel side - 1,200mm
3. Please refer to the LG Electronics drawings for the piping direction

- A : Hot Water Inlet  
B : Waste Heat Source Input  
C : Waste Heat Source Output  
D : Hot Water Outlet  
F : Clearance

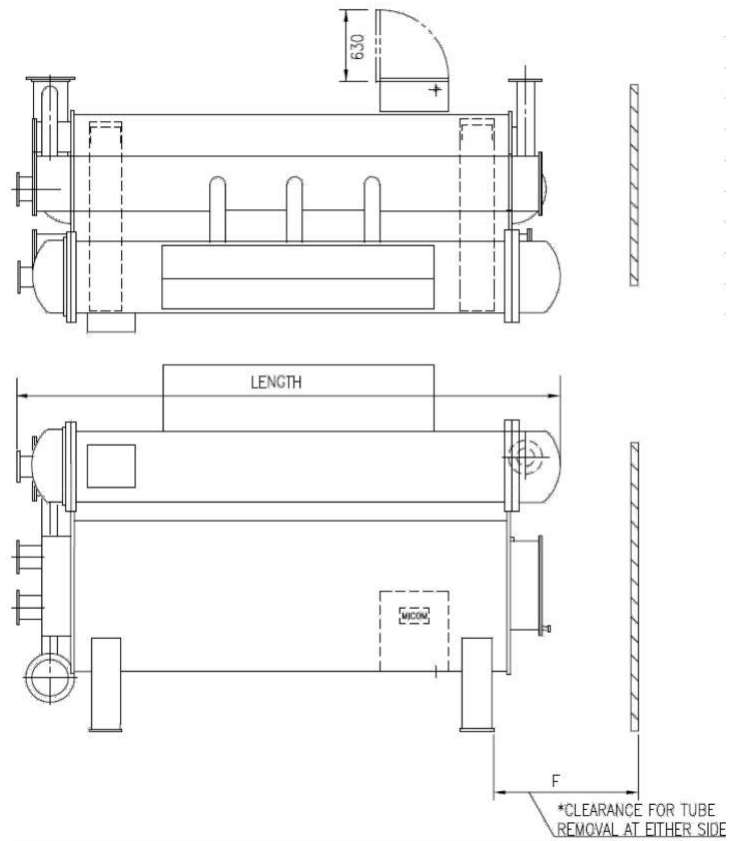
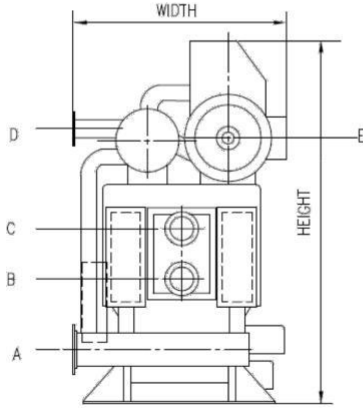


Model	Hot Water Capacity 10 <sup>4</sup> kcal/h	Dimension(mm)			Nozzle connection (B)					Clearance (mm)
		Length	Width	Height	A	B	C	D	E	
WCPX003	30	2,180	1,400	2,090	1.5	2.5	2.5	1.5	1.5	2,000
WCPX007	70	2,680	1,460	2,210	2.5	4	4	2.5	2	2,400
WCPX010	100	2,680	1,460	2,210	2.5	4	4	2.5	2.5	2,400
WCPX015	150	3,700	1,460	2,350	2.5	4	4	2.5	2.5	3,400
WCPX020	200	3,760	1,630	2,600	3	5	5	3	3	3,400
WCPX026	260	4,780	1,630	2,600	4	6	6	4	4	4,500
WCPX033	330	4,880	1,680	2,960	4	6	6	4	4	4,500
WCPX040	400	4,880	1,810	3,270	5	8	8	5	5	4,500
WCPX052	520	5,630	2,120	3,800	5	8	8	5	6	5,200
WCPX066	660	5,740	2,300	4,000	6	10	10	6	8	5,200
WCPX082	820	6,760	2,300	4,000	6	10	10	6	8	6,200

## WCPX - Steam

- All external water piping are to be provided with welded ANSI 150PSIG RF flanges by the customer.
- Installation and service clearance as follows :
  - Logitudinal distance - 1,000mm
  - Top - 200mm
  - Control panel side - 1,200mm
- Please refer to the LG Electronics drawings for the piping direction

- A : Hot Water Inlet  
 B : Waste Heat Source Input  
 C : Waste Heat Source Output  
 D : Hot Water Outlet  
 F : Clearance

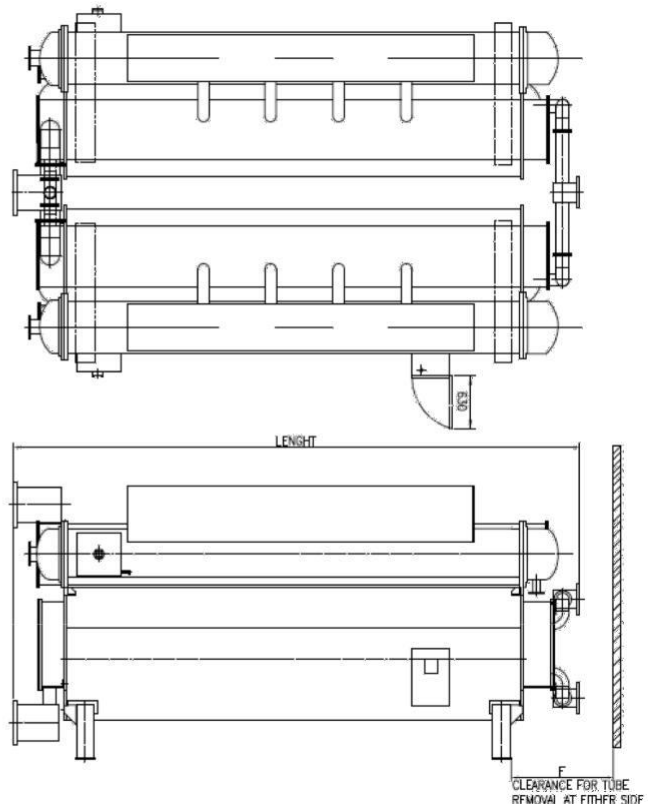
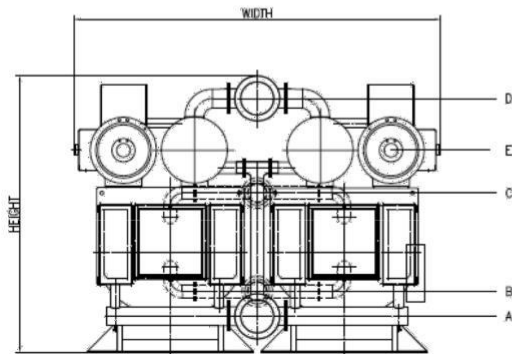


Model	Hot Water Capacity	Dimension(mm)			Nozzle connection (B)					Clearance (mm)
	10 <sup>4</sup> kcal/h	Length	Width	Height	A	B	C	D	E	F
WCPX098	980	6,720	2,780	4,200	8	12	12	8	8	6,200
WCPX115	1,150	6,860	3,010	4,300	8	14	14	8	10	6,200
WCPX130	1,300	7,370	3,240	4,400	10	16	16	10	10	6,800
WCPX147	1,470	8,170	3,240	4,400	10	16	16	10	10	7,600
WCPX163	1,630	8,970	3,240	4,400	10	16	16	10	10	8,400

## WCPX - Steam

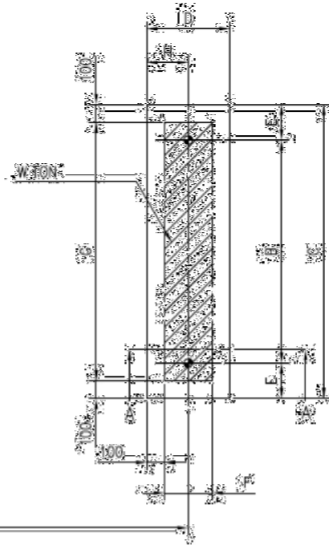
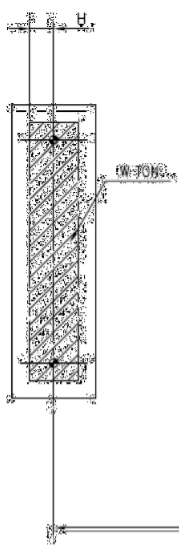
- All external water piping are to be provided with welded ANSI 150PSIG RF flanges by the customer.
- Installation and service clearance as follows : Logitudinal distance - 1,000mm  
Top - 200mm  
Control panel side - 1,200mm
- Please refer to the LG Electronics drawings for the piping direction

- A : Hot Water Inlet  
B : Waste Heat Source Input  
C : Waste Heat Source Output  
D : Hot Water Outlet  
F : Clearance

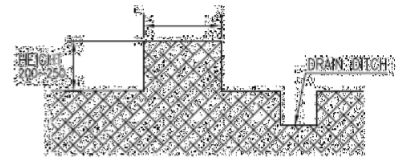


Model	Hot Water Capacity 10 <sup>4</sup> kcal/h	Dimension(mm)			Nozzle connection (B)					Clearance (mm)
		Length	Width	Height	A	B	C	D	E	
WCPX196	1,960	6,720	5,460	4,300	12	16	16	12	8 x 2	6,200
WCPX230	2,300	6,860	5,920	4,400	14	18	18	14	10 x 2	6,200
WCPX260	2,600	7,370	6,380	4,400	14	20	20	14	10 x 2	6,800

## WCPX003~WCPX163

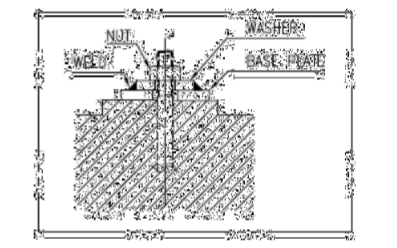


INDICATE THE POSITION OF ANCHOR BOLTS  
 THE FOUNDATION AND THE FLOOR MUST BE SUFFICIENTLY  
 STRONG TO SUPPORT THE UNIT WEIGHT  
 PROVIDE A DRAIN NEAR CHILLER FOUNDATION  
 FOUNDATION ANCHORING IS REQUIRED. ANCHOR BOLTS,  
 NUTS AND WASHERS SHALL BE SUPPLIED TOGETHER WITH CHILLER  
 ANCHOR BOLTS MUST BE PRE-SET IN THE FOUNDATION PRIOR TO  
 CHILLER INSTALLATION  
 UNIT MUST BE LEVELLED BEFORE STARTUP  
 (HORIZONTAL LEVEL MUST BE BELOW WITHIN ±2mm/1000mm)



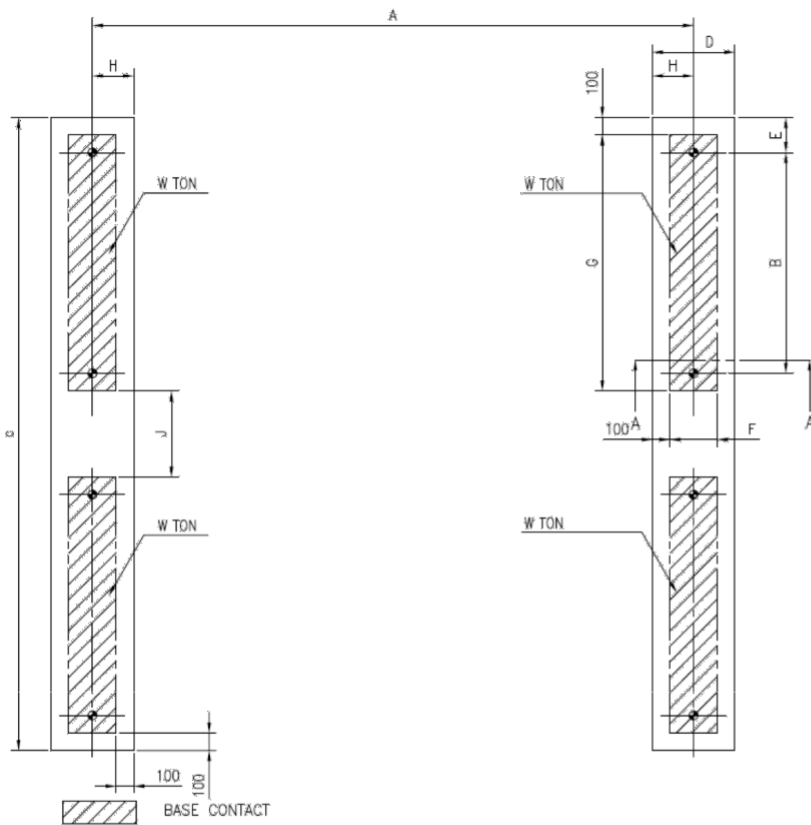
SECTION A-A

DETAIL DRAWING OF THE DRAIN DITCH



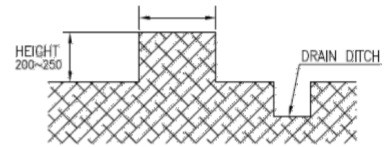
Model	Hot Water Capacity	Dimension(mm)								
	10 <sup>4</sup> kcal/h	A	B	C	D	E	F	G	H	W(ton)
WCPX003	30	1,470	820	1,140	295	160	95	940	147.5	1.5
WCPX007	70	1,926	820	1,220	345	200	145	1,020	172.5	2.3
WCPX010	100	1,926	820	1,220	345	200	145	1,020	172.5	2.5
WCPX015	150	2,946	820	1,220	345	200	145	1,020	172.5	3.2
WCPX020	200	2,816	980	1,380	470	200	270	1,180	235	4.2
WCPX026	260	3,836	980	1,380	470	200	270	1,180	235	5.2
WCPX033	330	3,836	1,040	1,440	470	200	270	1,240	235	6.5
WCPX040	400	3,836	1,160	1,560	470	200	270	1,360	235	8.0
WCPX052	520	4,378	1,600	2,000	470	200	270	1,800	235	11.9
WCPX066	660	4,328	1,800	2,200	520	200	320	2,000	260	15.3
WCPX082	820	5,351	1,800	2,200	520	200	320	2,000	260	17.5
WCPX098	980	4,951	2,100	2,500	520	200	320	2,300	260	20.7
WCPX115	1,150	4,951	2,300	2,700	520	200	320	2,500	260	24.1
WCPX130	1,300	5,461	2,500	2,900	520	200	320	2,700	260	27.9
WCPX147	1,470	6,261	2,500	2,900	520	200	320	2,700	260	29.7
WCPX163	1,630	7,061	2,500	2,900	520	200	320	2,700	260	31.5

## WCPX003 ~ WCPX163



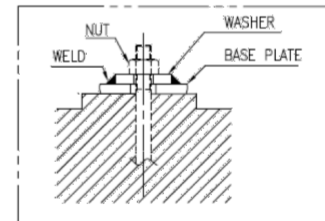
**NOTE:**

1. ◆ INDICATES THE POSION OF ANCHOR BOLTS.
2. THE FOUNDATION AND THE FLOOR MUST BE SUFFICIENTLY STRONG TO SUPPORT THE UNIT WEIGHT.
3. PROVIDE A FLOOR DRAIN NEAR CHILLER FOUNDATION.
4. ONLY IF FOUNDATION ANCHORING IS REQUIRED, ANCHOR BOLTS, NUTS AND WASHERS, SHALL BE SUPPLIED TOGETHER WITH CHILLER. ANCHOR BOLTS MUST BE FIXED ON THE FOUNDATION PRIOR TO CHILLER INSTALLATION
5. UNIT MUST BE LEVELED BEFORE STARTUP.  
(HORIZONTAL LEVEL MUST BE BELOW THAN 2mm/1000mm)



SECTION A-A

TYPICAL DRAWING OF THE DRAIN DITCH



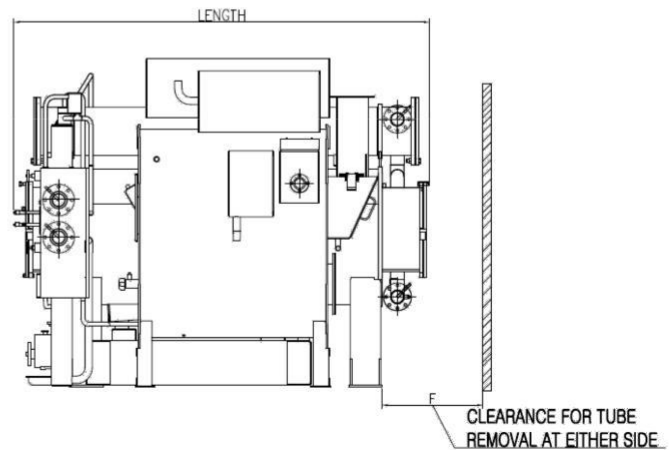
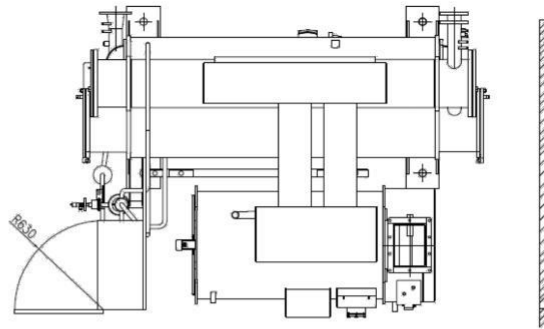
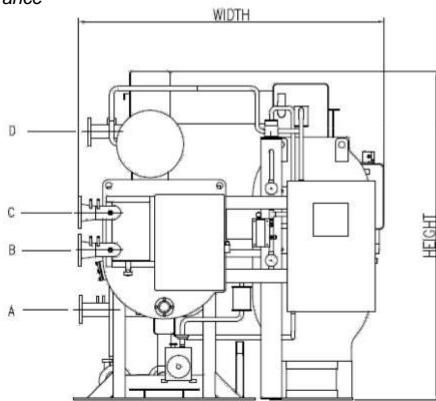
Model	Hot Water Capacity 10 <sup>4</sup> kcal/h	Dimension(mm)									
		A	B	C	D	E	F	G	H	J	W(ton)
WCPX196	1,960	4,951	2,100	5,000	520	200	320	2,300	260	200	41.2
WCPX230	2,300	4,951	2,300	5,400	520	200	320	2,500	260	200	43.3
WCPX260	2,600	5,461	2,500	5,800	520	200	320	2,700	260	200	56.0

# Outline & Foundation | Absorption heat pump - Direct Fired

## WCPX - Direct Fired

1. All external water piping are to be provided with welded ANSI 150PSIG RF flanges by the customer.
2. Installation and service clearance as follows : Logitudinal distance - 1,000mm  
Top - 200mm  
Control panel side - 1,200mm
3. Please refer to the LG Electronics drawings for the piping direction

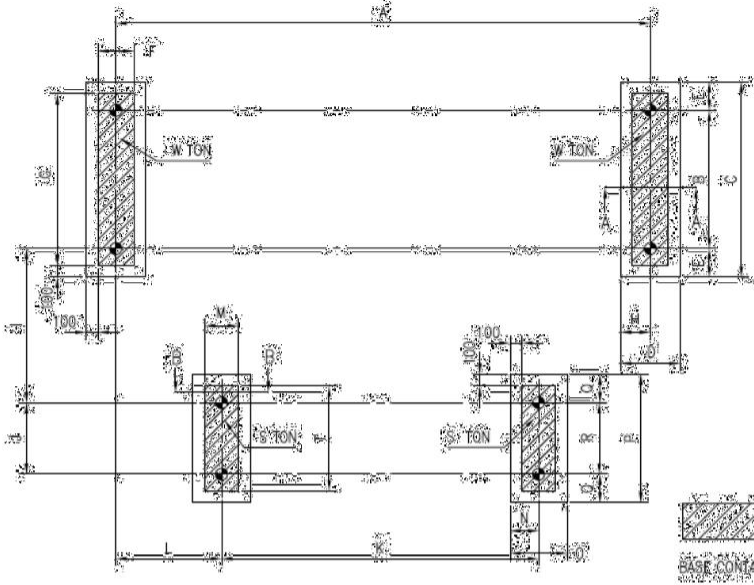
- A : Hot Water Inlet  
B : Waste Heat Source Input  
C : Waste Heat Source Output  
D : Hot Water Outlet  
F : Clearance



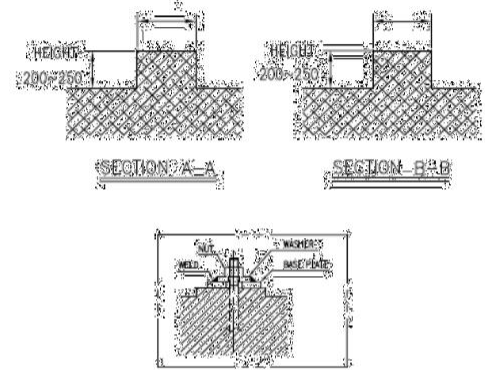
Model	Hot Water Capacity	Dimension(mm)			Nozzle connection (B)				Clearance (mm)
	10 <sup>4</sup> kcal/h	Length	Width	Height	A	B	C	D	F
WCPX003	30	2,620	2,140	2,030	1.5	2.5	2.5	1.5	2,000
WCPX007	70	3,120	2,190	2,060	2.5	4	4	2.5	2,400
WCPX010	100	3,120	2,190	2,060	2.5	4	4	2.5	2,400
WCPX015	150	3,990	2,190	2,120	2.5	4	4	2.5	3,400
WCPX020	200	4,020	2,540	2,390	3	5	5	3	3,400
WCPX026	260	4,820	2,560	2,610	4	6	6	4	4,500
WCPX033	330	4,940	2,830	3,030	4	6	6	4	4,500
WCPX040	400	5,080	3,010	3,030	5	8	8	5	4,500
WCPX052	520	6,080	3,500	3,650	5	8	8	5	5,200
WCPX066	660	6,710	4,020	3,650	6	10	10	6	5,200
WCPX082	820	7,810	4,070	3,680	6	10	10	6	6,200

# Outline & Foundation | Absorption heat pump - Direct Fired

WCPX003~WCPX082



NOTE:  
 1. INDICATES THE POSITION OF ANCHOR BOLTS.  
 2. THE FOUNDATION AND THE FLOOR MUST BE SUFFICIENTLY STRONG TO SUPPORT THE UNIT WEIGHT.  
 3. PROVIDE A FLOOR DRAIN NEAR CHILLER FOUNDATION.  
 4. ONLY IF FOUNDATION ANCHORING IS REQUIRED, ANCHOR BOLTS, NUTS AND WASHERS SHALL BE SUPPLIED TOGETHER WITH CHILLER. ANCHOR BOLTS MUST BE FIXED ON THE FOUNDATION PRIOR TO CHILLER INSTALLATION.  
 5. UNIT MUST BE LEVELLED BEFORE STARTING.  
 (HORIZONTAL LEVEL MUST BE BELOW THAN 2mm/1000mm)



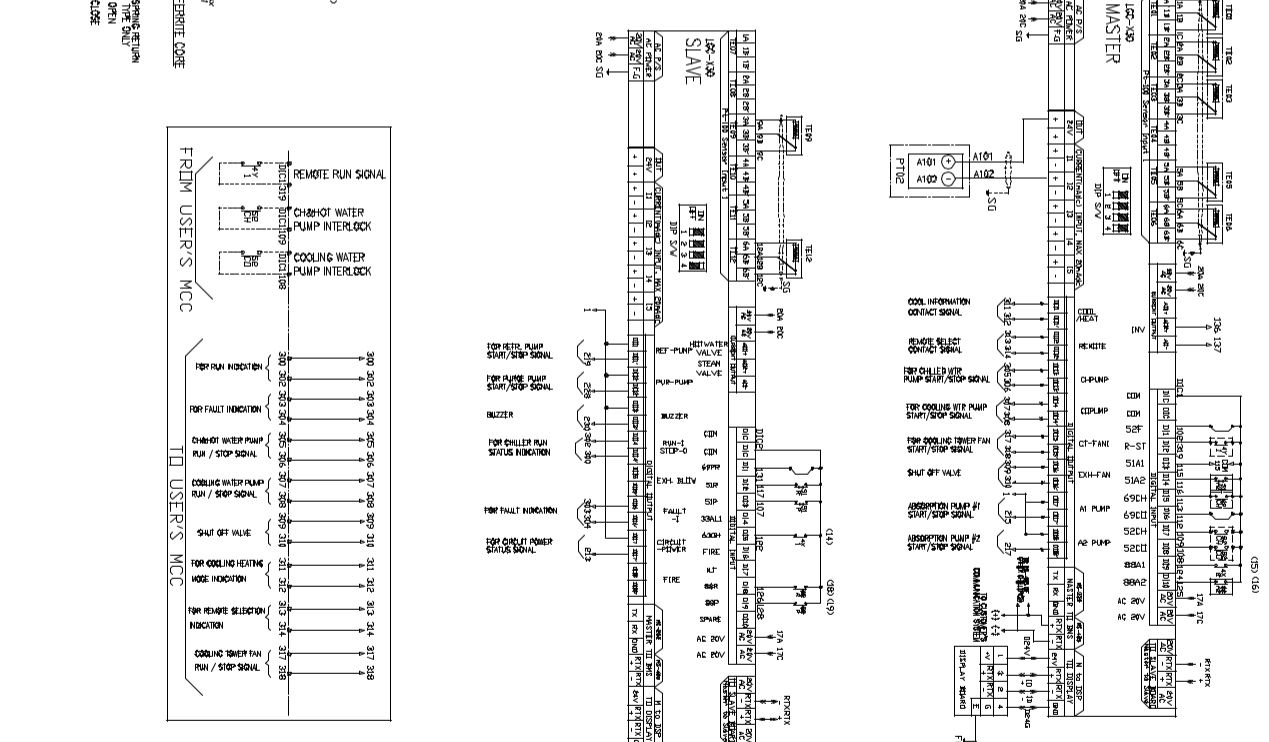
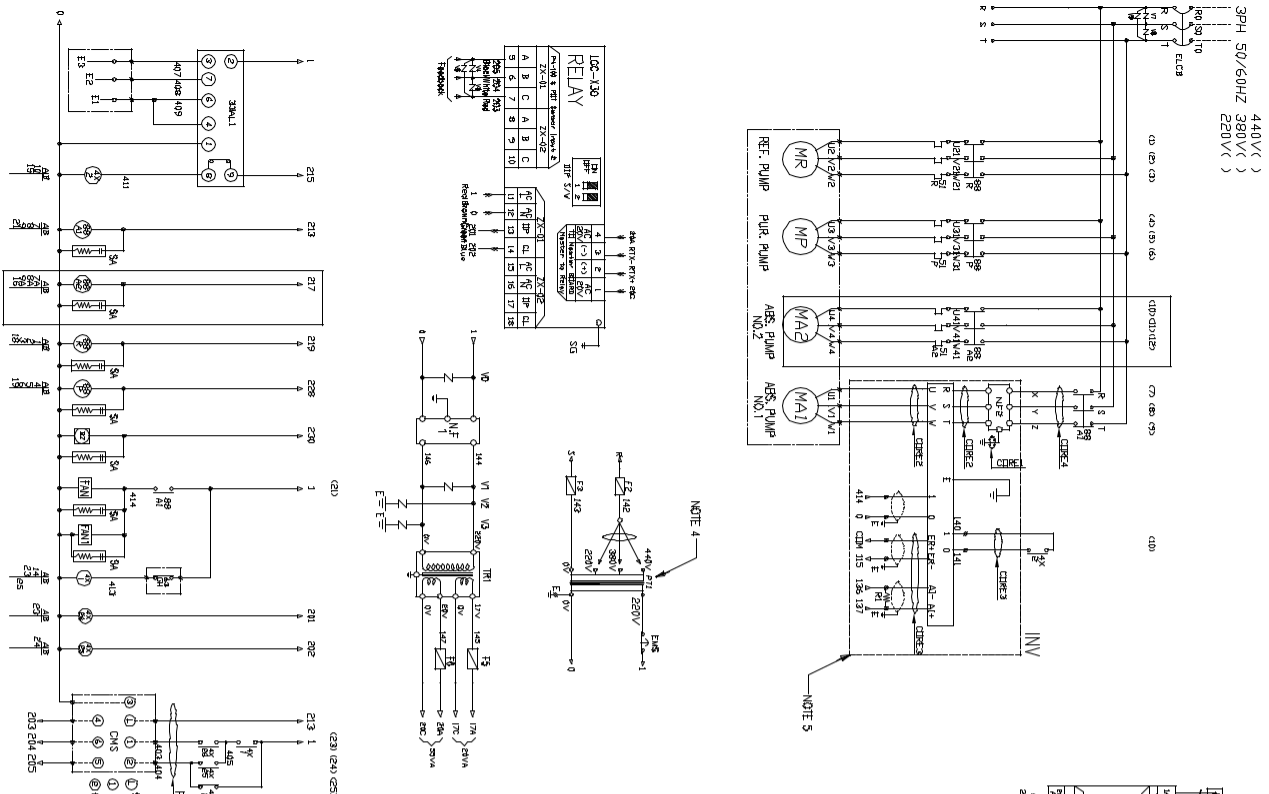
Model	Hot Water Capacity 10 <sup>4</sup> kcal/h	Dimension(mm)																				
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	T	S (Ton)	W (Ton)
WCPX003	30	1,470	820	1,140	295	160	95	940	147.5	258	220	970	698	100	100	200	540	160	220	340	0.8	1.45
WCPX007	70	1,926	820	1,220	345	200	145	1,020	172.5	577	300	1,330	425	130	160	330	750	225	300	440	0.9	1.90
WCPX010	100	1,926	820	1,220	345	200	145	1,020	172.5	547	350	1,350	440	170	185	370	750	200	350	550	0.9	2.10
WCPX015	150	2,946	820	1,220	345	200	145	1,020	172.5	559	350	1,850	672	170	185	370	750	200	350	550	1.3	2.65
WCPX020	200	2,816	980	1,380	470	200	270	1,180	235	549	460	1,954	716	220	210	420	820	185	460	620	1.6	3.45
WCPX026	260	3,836	980	1,380	470	200	270	1,180	235	557	550	2,250	830	220	210	420	920	185	550	720	2.1	4.30
WCPX033	330	3,836	1,040	1,440	470	200	270	1,240	235	480	960	2,250	1,165	200	200	400	1,320	180	960	1,120	2.8	5.35
WCPX040	400	3,836	1,160	1,560	470	200	270	1,360	235	460	1,160	2,400	1,328	300	250	500	1,520	180	1,160	1,320	3.4	6.55
WCPX052	520	4,378	1,600	2,000	470	200	270	1,800	235	460	1,160	3,000	1,328	300	250	500	1,520	180	1,160	1,320	5.0	9.90
WCPX066	660	4,328	1,800	2,200	520	200	320	2,000	260	750	1,260	3,400	0	300	250	500	1,620	180	1,260	1,420	7.0	12.65
WCPX082	820	5,351	1,800	2,200	520	200	320	2,000	260	800	1,340	3,700	0	300	250	500	1,700	180	1,340	1,500	10.5	17.45



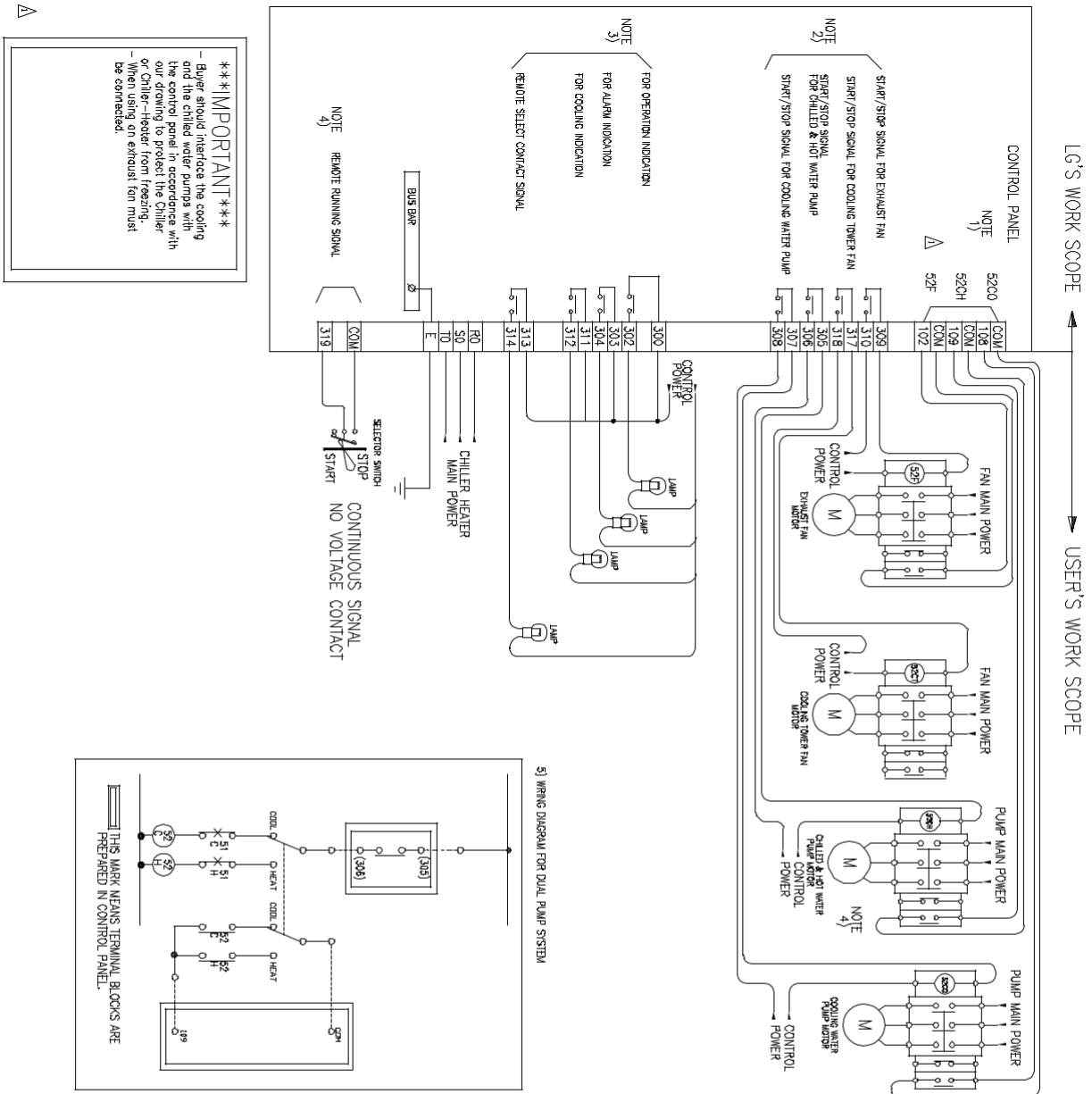




# Schematic diagram Steam fired absorption chiller

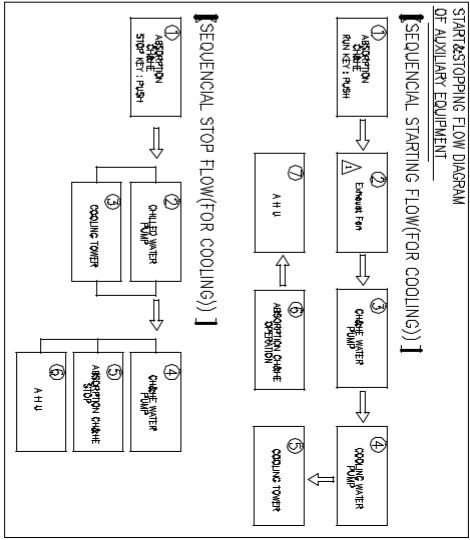
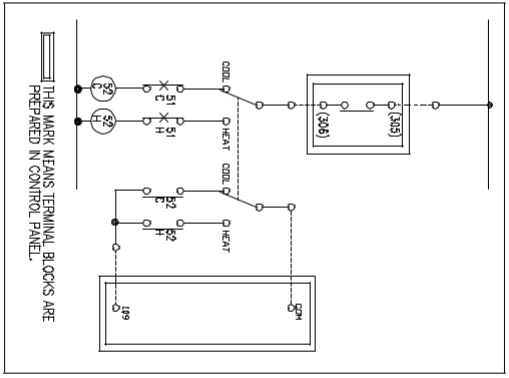


SYMBOL	DESCRIPTION	REMARKS
TE01	Chiller Fan Motor	PT1000mm
TE02	Chiller Fan Motor	PT1000mm
TE03	Chiller Water Pump Motor	PT1000mm
TE04	Chiller Water Pump Motor	PT1000mm
TE05	Chiller Water Pump Motor	PT1000mm
TE06	Chiller Water Pump Motor	PT1000mm
TE07	Chiller Water Pump Motor	PT1000mm
TE08	Chiller Water Pump Motor	PT1000mm
TE09	Chiller Water Pump Motor	PT1000mm
TE10	Chiller Water Pump Motor	PT1000mm
TE11	Chiller Water Pump Motor	PT1000mm
TE12	Chiller Water Pump Motor	PT1000mm
TE13	Chiller Water Pump Motor	PT1000mm
TE14	Chiller Water Pump Motor	PT1000mm
TE15	Chiller Water Pump Motor	PT1000mm
TE16	Chiller Water Pump Motor	PT1000mm
TE17	Chiller Water Pump Motor	PT1000mm
TE18	Chiller Water Pump Motor	PT1000mm
TE19	Chiller Water Pump Motor	PT1000mm
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TE32	Chiller Water Pump Motor	PT1000mm
TE33	Chiller Water Pump Motor	PT1000mm
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TE93	Chiller Water Pump Motor	PT1000mm
TE94	Chiller Water Pump Motor	PT1000mm
TE95	Chiller Water Pump Motor	PT1000mm
TE96	Chiller Water Pump Motor	PT1000mm
TE97	Chiller Water Pump Motor	PT1000mm
TE98	Chiller Water Pump Motor	PT1000mm
TE99	Chiller Water Pump Motor	PT1000mm
TE100	Chiller Water Pump Motor	PT1000mm



**\*\*\*IMPORTANT\*\*\***

- Buyer should interface the cooling and the chilled water pumps with the control panel in accordance with our drawing to protect the Chiller or Chiller-Heater from freezing.
- When using an exhaust fan must be connected.



- NOTE**
- 1) THESE INTERLOCK CONTACTS SHALL BE SUPPLIED BY USER.
    - CONTACT DESCRIPTION : NO-VOLTAGE CONTACT(DRY CONTACT)
    - ALLOWABLE CONTACT RESISTANCE : MAX. 100ohm
  - 2) THESE CONTACTS ARE FOR STARTING/STOPPING THERMIBEL EQUIPMENT.
    - RATED CONTACT : BELOW 250V/6c. 0.1A
  - 3) THESE CONTACTS ARE FOR INDICATION OF CHILLER OR CHILLER OPERATION.
    - RATED CONTACT : BELOW 250V/6c. 0.1A
  - 4) THESE SIGNALS SHALL BE SUPPLIED BY USER.

**-ADAPTATION TABLE**

ITEM	KINDS OF OUTPUT
CH/HE	OPERATION, STOP, ALARM, COOLING, HEATING CONSUMPTION



# ***Guide specification***

## ***Direct fired absorption Chiller & Heater (WCDH Series)***

### **Contents**

- 1. Application Scope*
- 2. Equipment Specification*
- 3. Work Scope*
- 4. Supply Scope*
- 5. Warranty and Service*
- 6. Others*

## 1. Application Scope

This manufacturing specification is applied to all models of the absorption chiller-heater H-Series.

## 2. Equipment Specification

### 2.1 General

2.1.1 The absorption chiller-heater H-Series uses the gas fuels such as LNG and city gas or the liquid fuels such as diesel and lamp oil. The microcomputer controls cooling capacity in PID (proportion, integration, differentiation).

2.1.2 Lithium Bromide (LiBr mass concentration 55%) added with anticorrosive agent (Mo type) is used for absorbent, and distilled water (H<sub>2</sub>O) is used for refrigerant.

2.1.3 The steel sheet and pipes are surface treated to prevent corrosion.

2.1.4 To check any leakage of the stored product before transportation and test-run and to prevent air infiltration, nitrogen gas of 0.3 Kg/cm<sup>2</sup>G is filled.

### 2.2 Components

2.2.1 Upper part (Low-temperature Regenerator, Condenser)

2.2.2 Lower part (Evaporator, Absorber)

2.2.3 High-temperature regenerator, exhaust gas heat exchanger

2.2.4 Low-temperature, high-temperature, refrigerant drain heat exchanger

2.2.5 Purge system (including a purge pump)

2.2.6 Combustion device

2.2.7 Absorbent pump and refrigerant pump

2.2.8 Control device

### 2.3 Manufacturing Specification

2.3.1 Upper part (Low-temperature Regenerator, Condenser)

1) It is a Shell & Tube type heat exchanger and consists of a low-temperature Regenerator and a condenser.

2) High-efficiency heat-transfer tube which is specially processed is used for the heat transfer tubes in the low-temperature regenerator and the condenser.

3) The heat-transfer tube should also be assembled with mechanical extension pipe by a tube plate so that it can be replaced.

4) Install an eliminator between the low-temperature regenerator and the condenser to prevent absorbent from moving over to the condenser with the refrigerant steam generated at the low-temperature regenerator.

5) The maximum use pressure of cooling water is 10kg/cm<sup>2</sup>G.

2.3.2 Lower part (Evaporator, Absorber)

1) It is a Shell & Tube type heat exchanger and consists of an evaporator and an absorber.

2) High-efficiency heat-transfer tube which is specially processed is used for the heat transfer tubes in the evaporator and the absorber.

3) The heat-transfer tube should also be assembled with mechanical extension pipe by a tube plate so that it can be replaced.

4) Install an eliminator between the evaporator and the absorber to prevent absorbent from moving over to the evaporator.

5) Absorbent and refrigerant are sprayed evenly on the surface of the heat-transfer tube by gravity and capillary through installing a tray at the top of the evaporator and absorber and don't use the spray nozzle which needs the power of a pump.

6) Install a bypass pipe between the evaporator and the absorber so that pure refrigerant can be regenerated by bypassing the refrigerant from the evaporator to the absorber in case the refrigerant is contaminated.

7) Install a water cut-off switch at the chilled water to prevent chilled water from being frozen.

8) The maximum use pressure of chilled water and cooling water is 10kg/cm<sup>2</sup>G.

2.3.3 High-temperature regenerator and exhaust gas heat exchanger

1) It has a normal fire tube boiler type structure. Absorbent is charged at the shell and exhaust gas passes through the fire tube for the first heat exchange.

2) The exhaust gas which completed the first heat exchange conducts the second heat exchange at the fin-tube structured exhaust gas heat exchanger.

3) Rolled steel for weldment structure which has superior corrosion resistance is used for the smoke chamber material which contacts high-temperature combustion fire and exhaust gas, and carbon steel pipe for pressure piping is used for the fire tube material.

4) Insert a baffle inside the fire tube so that exhaust gas forms swirling to enhance heat exchange efficiency of the fire tube. The structure of the baffle should allow easy inspection and cleaning.

5) Install an eliminator at the top of the high-temperature regenerator to prevent absorbent from moving over to the low-temperature regenerator with the refrigerant steam generated.

6) Install a level bar for liquid detection to control the absorbent level inside the high-temperature regenerator.

2.3.4 Low-temperature, high-temperature, refrigerant drain heat exchanger

1) The low-temperature and high-temperature heat exchangers are a welded type plate heat exchanger, and the refrigerant drain heat exchanger is composed of a brazing type plate heat exchanger.

2) STS430 which has superior corrosion resistance is used for the interior material of the low-temperature and high-temperature heat exchangers.

2.3.5 Purge system

1) It consists of vacuum pump, separator, low chamber,

vacuum pressure transmitter in the range of 0-750mmHg, and control valve and prints out the pressure in digital.

2) Apply a high-efficiency purge system with the absorbent nozzle spray type and improve the screw contact parts in weldment structure to improve vacuum maintenance capacity so that purge system control number by the vacuum pump is reduced.

### 3) Digital auto purge system(Option)

It completely collects and stores non-condensable gas inside the machine during machine operation, and in case the purge tank pressure reaches the setting value, the vacuum sensor detects it, and value control and vacuum pump operation is automatically made to exhaust the non-condensable gas.

### 2.3.6 Combustion device

1) It consists of burner, air blower, sound absorber, cut-off valve and fuel control valve.

2) It senses the outlet temperatures of chilled water and hot water and controls the fuel and air volumes in PID (proportion, integration, differentiation) by the instruction of the capacity control device.

### 2.3.7 Absorbent pump and refrigerant pump

1) It doesn't need separate lubricant and cooling devices and uses the Non-Seal Canned Motor Pump which houses all revolving parts such as a pump and a motor in a closed case to maintain the inside of the chiller-heater vacuum.

### 2.3.8 Control Device

#### 1) Structure of Control Panel

The control panel consists of microcomputer (Master/Slave Board, Display Board, Relay Board), power supply device for stable power supply, circuit breaker for other control or safety, electronic contactor, and relay for control. Major functions of each module are as follows.

#### 2) Master/Slave Board

Main module should be applied with a high performance microprocessor and conducts the control function optimized to the mechanical devices, and the high-precision A/D(analog/digital) converter should measure various temperature sensors and display or apply in control. Also, RS-485 communication port is embedded to support customer's remote monitoring and control so that simple control can easily response to customers' automated buildings.

#### 3) Display Board

Display board is composed of setting value required for various operation data and machine operation, display which shows abnormal data in text, key input which inputs various data or selects menu, and LED lamp display which shows major status of the equipment such as machine operation/stop important to machine operation, absorbent pump, refrigerant pump, purge pump, abnormality, etc. Especially, for those control devices the operator uses frequently, they should be controlled by direct key use, and

other controls can be made by selecting menu to enhance operator convenience.

The control keys are composed of six menu control keys, three manual control valve control keys, three manual purge pump control keys, and two operation/stop keys for operation/stop. In preparation of the control key failure, manual control menu can control. Also, the display can display operating status in Korean, Chinese, or English selected by the operator, which enhances operator's convenience.

#### 4) Relay Board

Input/output module should be composed of digital input which checks various switches' operation and digital output which controls machine operation. Also, input/ output module should be installed with a photo coupler to cut-off various noises, and by letting all data transmitted/ received with the main module by communication, the malfunction caused by electronic wave occurring when the data are transmitted/received with normal cables should be prevented, which secures high reliability.

### 2.3.9 Characteristics of Control Device

#### 1) Convenient Operating Data Management

A seven-inch color LCD is applied so that much operating information can be checked in one screen, and the customer saves 300 times of analog data (example: temperature data) by each channel so that he/she can use for daily operation record or maintenance.

Also, the trends of temperature change can be easily understood by graphing chilled and hot water outlet temperature and high-temperature regenerator temperature in real time.

#### 2) Self Diagnosis and Failure History Record

The microcomputer monitors the machine status during stop or operation and notifies the operator by using screen message, alarm lamp, or buzzer and at the same time automatically records the time and failure data which can be easily used during maintenance. Especially, failure type should be classified to warning and abnormality so that if a warning notice should be issued, its content is expressed in text and the operation continues, which minimized unnecessary machine stops.

#### 3) Optimized Artificial Intelligence Control Algorithm

##### • Soft startup

Slowly control the heat input to prevent any machine impact caused by sudden heat supply in startup.

##### • Advanced Digital PID Control

The digital PID control linked with soft startup should automatically recognize the optimal PID control point in startup or when the operation mode changes from manual to auto and reflect it to control equations so that unnecessary machine stops is to be minimized, and stable and precise temperature control can be made.

##### • Preventative Operation against Crystallization

Measure the temperature of each part during operation to calculate density and conduct first and second preventative operation based on that result so that an abnormality is prevented in advance.

- **Preventative Operation against High Temperature Occurrence at the High-temperature Regenerator**  
Monitor the temperature change of the high-temperature regenerator at all times and conduct a preventative operation before the temperature of the high-temperature regenerator becomes too high.
- **Responsive Control to Cooling Water Temperature**  
Higher efficient operation is possible by controlling fuel heat input depending on the cooling water inlet temperature.
- **Optimal Dilution Operation Cycle Control**  
When stopping operation, the algorithm of the micro-computer varies the operation hours of the refrigerant pump and absorbent pump No. 1 depending on absorbent the temperature of the high-temperature regenerator so that shortened dilution operation can save the operating cost of auxiliary devices. Also, when restarting, the immediate cooling/heating operation startup is possible without a separate dilution operation.
- **Scheduled Operation Function**  
Apply the schedule operation function which can select operation/stop by day up to 11 times or by dates and holidays and control temperature setting to enhance the convenience of machine operation (scheduled operation).
- **Operating Function against Power Breakdown**  
This function checks power breakdown schedule at the controller and conducts the functions such as auto restart, auto dilution operation, warning, etc. in accordance with the power breakdown time.
- **Absorbent Pump Inverter Control**  
By the variable control (stepless control) depending on the rotation number of the absorbent pump and controlling the absorbent volume circulating from the absorber to the high-temperature regenerator, partial load efficiency is improved, and the time to reach regulated status is shortened in the initial startup.
- **Soft Start of the Absorbent Pump**  
Slowly increase the rotation number for 30 seconds when starting the absorbent pump to prevent any machine impact in startup, which protects the absorbent pump and enhance durability of the piping and heat exchanger.

#### 4) Strong Customer Support Function

- **Communication Function for Building Automation and Remote Monitoring Control**  
This function is equipped with a standard communication function (RS485, Modbus Standard) to connect easily with the monitoring system and provides no-voltage input/output to operate/stop remotely by simple electric wiring or to monitor major operation status of the machine.

Also, as an optional specification, BACnet or Lon can be additionally installed to enhance customers' convenience.

#### • Help Function

This function remembers the content of the failure when it occurs, and when the operator selects it in the menu following the failure content, the function enhances operator's convenience by showing the actions for failure.

#### 2.3.10 Automatic Safety Device

- 1) Chilled/hot water and cooling water safety device, high-temperature regenerator protection device, motor protection device, absorbent crystallization protection device, and combustion safety device, etc. are included.
  - 2) Chilled/hot water and cooling water safety device
    - Chilled/hot water pump Interlock contact
    - Cooling water pump Interlock contact
    - Chilled/hot water cut-off switch: chilled/hot water volume less than 50%
    - Chilled water temperature(low): chilled water outlet temperature lower than 2.5°C
    - Hot water temperature(high): hot water outlet temperature higher than 70°C
    - Cooling water temperature(low): cooling water inlet temperature lower than 19°C for 30 minutes
    - Evaporator refrigerant temperature (low): refrigerant temperature lower than 2.5°C(option)
- ※ Since operation/stop signal of chilled water and cooling water pumps and the interlock contact are very important safety devices which can prevent chiller-heater freeze and safety accidents, be sure to wire so that the chiller-heater, the chilled water pump, and the cooling water pump are interlocked and operated
- ※ Also, in case multiple cooling water pipes are connected in parallel, automatic cut-off valve should be installed to prevent water from flowing to the cooling water pipe of the relevant chiller-heater, and then the automated cut-off valve should be installed to open and close in link with LG Electronics control devices. The automatic cut-off valve should open and close in link and synchronization with the operation/stop signal of the cooling water pump provided by LG Electronics.
- Details should be consulted with LG Electronics.
- 3) High-temperature regenerator protection device
    - High-temperature regenerator temperature(high): above 165°C in cooling, above 130°C in heating
    - High-temperature regenerator pressure(high) above 0kg/cm<sup>2</sup>G
    - High-temperature regenerator liquid level(low): emergency alarm
    - High-temperature regenerator liquid level(high): automatic return
    - Exhaust gas temperature(high): above 300°C for gas type, above 350°C for oil type
  - 4) Motor protection device



- Absorbent pump thermos relay
- Refrigerant pump thermos relay
- Purge pump thermos relay
- Burner air blower thermos relay

## 5) Automatic absorbent crystallization protection device

- In cooling operation, in case the absorbent density calculated by the microcomputer is equal or higher than 65%, limit the fuel heat input to 60% and operate for 10 minutes. Then, recalculate density and if it is not below 65%, abnormal high density is activated to stop the equipment.
- Low-temperature regenerator absorbent temperature sensor
- Absorbent over flow: resolve initial crystallization symptom
- Condenser refrigerant temperature sensor
- Refrigerant over flow: automatic adjustment of the maximum load density
- Display density on the LCD screen

## 6) Combustion safety device

- Various safety devices are installed complying with the safety standard for combustible equipment, and especially a self-leakage detection device is installed to enhance safety.
- Supply/ventilation fan operation/stop contact
- The burner is equipped with protect relay, fire detector, air pressure switch, high combustion limit switch, low combustion limit switch, gas pressure switch(for gas type only), fuel cut-off verification sub-switch(for gas type only), etc.

## 3. Work Scope

Item	Owner	Remark
Body Painting	LG Electronics	Body: Morning Gray Control Panel: Warm Gray
Insulation	LG Electronics	Warm insulation: NBR 19mm, Glass wool 75, 25mm Cold insulation: NBR 19mm
Delivery and Installation	LG Electronics	Deliver to the base and install
Leakage Test, Absorbent and Refrigerant Charge	LG Electronics	Conducted works before the test-run at the installation place
Exterior Piping Work	Customer	Chilled water(hot water), cooling water, gas contact piping works
Exterior Wiring Work	Customer	Control panel first power work (main power, control power) and all electric wiring work mutually contacting between the control panel and customers' facilities
Air supply fan or ventilation fan	Customer	For the ventilation when installing the chiller-heater at indoor
Building and Base	Customer	
Nitrogen Gas Supplement	Customer	Means gas supplement for the chiller-heater storage (when the equipment is not operated for a long time after the test run) after the test run at the site.

Item	Owner	Remark
Test Run and Operation Training	LG Electronics	Conduct two times (one day) for eight hours (The customer supplies required electricity, fuel, chilled water, and cooling water, etc.)

## 4. Supply Scope

No	Item	Remark
1	Absorption Chiller-Heater Body	
2	Absorbent (LiBr)	Bring in separately from the equipment
3	Refrigerant (H <sub>2</sub> O)	Bring in separately from the equipment
4	Burner	Bring in separately from the equipment
5	Micom	Bring in separately from the equipment
6	Chiller-Heater Instruction Manual	3 copies

## 5. Warranty and Service

5.1 The warranty period of the product terminates either "1.5 years after the product delivery" or "one year from the test run," whichever comes first.

5.2 For any product failure within the warranty period due to the components or materials of this machine or works, LG Electronics examine it and repair it free of charge if that failure is acknowledged.

5.3 Free repair is not provided for the following cases.

- 1) The failure occurred after the product is repaired in the other shop other than designated store
- 2) It is evident that the failure occurred due to the customer's mistake in use and handling
- 3) The product has been resold or transferred to others during warranty period
- 4) The failure was caused by fire or natural disaster

## 6. Others

6.1 Before manufacturing the chiller-heater, submit all facts regarding manufacturing to the customer, and manufacture after receiving customer's approval. For any item not specified in this specification, discuss with the customer and receive an approval before implementing it.

6.2 You should notify LG Electronics if you resell or transfer the product before scrapping it.

# ***Guide specification***

## ***Steam fired Absorption Chiller (WCSH Series)***

### ***Contents***

- 1. Application Scope*
- 2. Equipment Specification*
- 3. Work Scope*
- 4. Supply Scope*
- 5. Warranty and Service*
- 6. Others*



## 1. Application Scope

This manufacturing specification is applied to all models of double-effect steam fired absorption chiller SH-Series.

## 2. Equipment Specification

### 2.1 General

2.1.1 The absorption chiller SH-Series uses the saturated steam. The microcomputer controls cooling capacity in PID (proportion, integration, differentiation).

2.1.2 Lithium Bromide (LiBr mass concentration 55%) added with anticorrosive agent (Mo type) is used for absorbent, and distilled water (H<sub>2</sub>O) is used for refrigerant.

2.1.3 The steel sheet and pipes are surface treated to prevent corrosion.

2.1.4 To check any leakage of the stored product before transportation and test-run and to prevent air infiltration, nitrogen gas of 0.3 Kg/cm<sup>2</sup>G is filled.

### 2.2 Components

2.2.1 Upper part (Low-temperature Regenerator, Condenser)

2.2.2 Lower part (Evaporator, Absorber)

2.2.3 High-temperature regenerator

2.2.4 Heat recovery unit

2.2.5 Low-temperature, high-temperature, refrigerant drain heat exchanger

2.2.6 Purge system (including a purge pump)

2.2.7 Absorbent pump and refrigerant pump

2.2.8 Control device

### 2.3 Manufacturing Specification

2.3.1 Upper part (Low-temperature Regenerator, Condenser)

- 1) It is a Shell & Tube type heat exchanger and consists of a low-temperature Regenerator and a condenser.
  - 2) High-efficiency heat-transfer tube which is specially processed is used for the heat transfer tubes in the low-temperature regenerator and the condenser.
  - 3) The heat-transfer tube should also be assembled with mechanical extension pipe by a tube plate so that it can be replaced.
  - 4) Install an eliminator between the low-temperature regenerator and the condenser to prevent absorbent from moving over to the condenser with the refrigerant steam generated at the low-temperature regenerator.
  - 5) The maximum use pressure of cooling water is 10kg/cm<sup>2</sup>G.
- 2.3.2 Lower part (Evaporator, Absorber)
- 1) It is a Shell & Tube type heat exchanger and consists of an evaporator and an absorber.
  - 2) High-efficiency heat-transfer tube which is specially processed is used for the heat transfer tubes in the evaporator and the absorber.
  - 3) The heat-transfer tube should also be assembled with mechanical extension pipe by a tube plate so that it can be

replaced.

- 4) Install an eliminator between the evaporator and the absorber to prevent absorbent from moving over to the evaporator.
  - 5) Absorbent and refrigerant are sprayed evenly on the surface of the heat-transfer tube by gravity and capillary through installing a tray at the top of the evaporator and absorber and don't use the spray nozzle which needs the power of a pump.
  - 6) Install a bypass pipe between the evaporator and the absorber so that pure refrigerant can be regenerated by bypassing the refrigerant from the evaporator to the absorber in case the refrigerant is contaminated.
  - 7) Install a water cut-off switch at the chilled water to prevent chilled water from being frozen.
  - 8) The maximum use pressure of chilled water and cooling water is 10kg/cm<sup>2</sup>G.
- 2.3.3 High-temperature regenerator
- 1) Use Shell & Tube type heat exchanger and apply LG's high efficiency tube.
  - 2) The heat-transfer tube should also be assembled with mechanical extension pipe by a tube plate so that it can be replaced.
  - 3) Install an eliminator at the top of the high-temperature regenerator to prevent absorbent from moving over to the low-temperature regenerator with the refrigerant steam generated.
  - 4) Install an eliminator at the top of the high-temperature regenerator to prevent absorbent from moving over to the low-temperature regenerator with the refrigerant steam generated.
  - 5) The maximum use pressure of steam is 8kg/cm<sup>2</sup>G.
- 2.3.4 Heat recovery unit
- 1) Use brazing type plate heat exchanger.
- 2.3.5 Low-temperature, high-temperature, refrigerant drain heat exchanger.
- 1) The low-temperature and high-temperature heat exchangers are a welded type plate heat exchanger, and the refrigerant drain heat exchanger is composed of a brazing type plate heat exchanger.
  - 2) STS430 which has superior corrosion resistance is used for the interior material of the low-temperature and high-temperature heat exchangers.
- 2.3.6 Purge system
- 1) It consists of vacuum pump, separator, low chamber, vacuum pressure transmitter in the range of 0-750mmHg, and control valve and prints out the pressure in digital.
  - 2) Apply a high-efficiency purge system with the absorbent nozzle spray type and improve the screw contact parts in weldment structure to improve vacuum maintenance capacity so that purge system control number by the vacuum pump is reduced.
  - 3) Digital auto purge system (Option)

It completely collects and stores non-condensable gas inside the machine during machine operation, and in case the purge tank pressure reaches the setting value, the vacuum sensor detects it, and value control and vacuum pump operation is automatically made to exhaust the non-condensable gas.

### 2.3.7 Absorbent pump and refrigerant pump

1) It doesn't need separate lubricant and cooling devices and uses the Non-Seal Canned Motor Pump which houses all revolving parts such as a pump and a motor in a closed case to maintain the inside of the chiller vacuum.

### 2.3.8 Control Device

#### 1) Structure of Control Panel

The control panel consists of microcomputer (Master/Slave Board, Display Board, Relay Board), power supply device for stable power supply, circuit breaker for other control or safety, electronic contactor, and relay for control. Major functions of each module are as follows.

#### 2) Master/Slave Board

Main module should be applied with a high performance microprocessor and conducts the control function optimized to the mechanical devices, and the high-precision A/D(analog/digital) converter should measure various temperature sensors and display or apply in control. Also, RS-485 communication port is embedded to support customer's remote monitoring and control so that simple control can easily response to customers' automated buildings.

#### 3) Display Board

Display board is composed of setting value required for various operation data and machine operation, display which shows abnormal data in text, key input which inputs various data or selects menu, and LED lamp display which shows major status of the equipment such as machine operation/stop important to machine operation, absorbent pump, refrigerant pump, purge pump, abnormality, etc. Especially, for those control devices the operator uses frequently, they should be controlled by direct key use, and other controls can be made by selecting menu to enhance operator convenience.

The control keys are composed of six menu control keys, three manual control valve control keys, three manual purge pump control keys, and two operation/stop keys for operation/stop. In preparation of the control key failure, manual control menu can control. Also, the display can display operating status in Korean, Chinese, or English selected by the operator, which enhances operator's convenience.

#### 4) Relay Board

Input/output module should be composed of digital input which checks various switches' operation and digital output which controls machine operation. Also, input/ output module should be installed with a photo coupler to cut-off various noises, and by letting all data transmitted/

received with the main module by communication, the malfunction caused by electronic wave occurring when the data are transmitted/received with normal cables should be prevented, which secures high reliability.

### 2.3.9 Characteristics of Control Device

#### 1) Convenient Operating Data Management

A seven-inch color LCD is applied so that much operating information can be checked in one screen, and the customer saves 300 times of analog data (example: temperature data) by each channel so that he/she can use for daily operation record or maintenance.

Also, the trends of temperature change can be easily understood by graphing chilled and hot water outlet temperature and high-temperature regenerator temperature in real time.

#### 2) Self Diagnosis and Failure History Record

The microcomputer monitors the machine status during stop or operation and notifies the operator by using screen message, alarm lamp, or buzzer and at the same time automatically records the time and failure data which can be easily used during maintenance. Especially, failure type should be classified to warning and abnormality so that if a warning notice should be issued, its content is expressed in text and the operation continues, which minimized unnecessary machine stops.

#### 3) Optimized Artificial Intelligence Control Algorithm

##### • Soft startup

Slowly control the heat input to prevent any machine impact caused by sudden heat supply in startup.

##### • Advanced Digital PID Control

The digital PID control linked with soft startup should automatically recognize the optimal PID control point in startup or when the operation mode changes from manual to auto and reflect it to control equations so that unnecessary machine stops is to be minimized, and stable and precise temperature control can be made.

##### • Preventative Operation against Crystallization

Measure the temperature of each part during operation to calculate density and conduct first and second preventative operation based on that result so that an abnormality is prevented in advance.

##### • Preventative Operation against High Temperature Occurrence at the High-temperature Regenerator

Monitor the temperature change of the high-temperature regenerator at all times and conduct a preventative operation before the temperature of the high-temperature regenerator becomes too high.

##### • Responsive Control to Cooling Water Temperature

Higher efficient operation is possible by controlling fuel heat input depending on the cooling water inlet temperature.

##### • Optimal Dilution Operation Cycle Control

When stopping operation, the algorithm of the micro-computer varies the operation hours of the refrigerant

pump and absorbent pump No. 1 depending on absorbent the temperature of the high-temperature regenerator so that shortened dilution operation can save the operating cost of auxiliary devices. Also, when restarting, the immediate cooling/heating operation startup is possible without a separate dilution operation.

- **Scheduled Operation Function**

Apply the schedule operation function which can select operation/stop by day up to 11 times or by dates and holidays and control temperature setting to enhance the convenience of machine operation (scheduled operation).

- **Operating Function against Power Breakdown**

This function checks power breakdown schedule at the controller and conducts the functions such as auto restart, auto dilution operation, warning, etc. in accordance with the power breakdown time.

- **Absorbent Pump Inverter Control**

By the variable control (stepless control) depending on the rotation number of the absorbent pump and controlling the absorbent volume circulating from the absorber to the high-temperature regenerator, partial load efficiency is improved, and the time to reach regulated status is shortened in the initial startup.

- **Soft Start of the Absorbent Pump**

Slowly increase the rotation number for 30 seconds when starting the absorbent pump to prevent any machine impact in startup, which protects the absorbent pump and enhance durability of the piping and heat exchanger.

#### 4) Strong Customer Support Function

- **Communication Function for Building Automation and Remote Monitoring Control**

This function is equipped with a standard communication function (RS485, Modbus Standard) to connect easily with the monitoring system and provides no-voltage input/output to operate/stop remotely by simple electric wiring or to monitor major operation status of the machine.

Also, as an optional specification, BACnet or Lon can be additionally installed to enhance customers' convenience.

- **Help Function**

This function remembers the content of the failure when it occurs, and when the operator selects it in the menu following the failure content, the function enhances operator's convenience by showing the actions for failure.

#### 2.3.10 Automatic Safety Device

1) Chilled/hot water and cooling water safety device, high-temperature regenerator protection device, motor protection device, absorbent crystallization protection device, and combustion safety device, etc. are included.

2) Chilled/hot water and cooling water safety device

- Chilled/hot water pump Interlock contact
- Cooling water pump Interlock contact
- Chilled/hot water cut-off switch: chilled/hot water volume less than 50%

- Chilled water temperature(low): chilled water outlet temperature lower than 2.5°C
  - Hot water temperature(high): hot water outlet temperature higher than 70°C
  - Cooling water temperature(low): cooling water inlet temperature lower than 19°C for 30 minutes
  - Evaporator refrigerant temperature (low): refrigerant temperature lower than 2.5°C(option)
- ※ Since operation/stop signal of chilled water and cooling water pumps and the interlock contact are very important safety devices which can prevent chiller freeze and safety accidents, be sure to wire so that the chiller, the chilled water pump, and the cooling water pump are interlocked and operated
- ※ Also, in case multiple cooling water pipes are connected in parallel, automatic cut-off valve should be installed to prevent water from flowing to the cooling water pipe of the relevant chiller, and then the automated cut-off valve should be installed to open and close in link with LG Electronics control devices. The automatic cut-off valve should open and close in link and synchronization with the operation/stop signal of the cooling water pump provided by LG Electronics.
- Details should be consulted with LG Electronics.
- 3) High-temperature regenerator protection device
- High-temperature regenerator temperature(high): above 165°C in cooling, above 130°C in heating
  - High-temperature regenerator pressure(high) above 0kg/cm<sup>2</sup>G
  - High-temperature regenerator liquid level(low): emergency alarm
  - High-temperature regenerator liquid level(high): automatic return
- 4) Motor protection device
- Absorbent pump thermos relay
  - Refrigerant pump thermos relay
  - Purge pump thermos relay
  - Burner air blower thermos relay
- 5) Automatic absorbent crystallization protection device
- In cooling operation, in case the absorbent density calculated by the microcomputer is equal or higher than 65%, limit the fuel heat input to 60% and operate for 10 minutes. Then, recalculate density and if it is not below 65%, abnormal high density is activated to stop the equipment.
  - Low-temperature regenerator absorbent temperature sensor
  - Absorbent over flow: resolve initial crystallization symptom
  - Condenser refrigerant temperature sensor
  - Refrigerant over flow: automatic adjustment of the maximum load density
  - Display density on the LCD screen

### 3. Work Scope

Item	Owner	Remark
Body Painting	LG Electronics	Body: Morning Gray Control Panel: Warm Gray
Insulation	LG Electronics	Warm insulation: NBR 19mm, Glass wool 75, 25mm Cold insulation: NBR 19mm
Delivery and Installation	LG Electronics	Deliver to the base and install
Leakage Test, Absorbent and Refrigerant Charge	LG Electronics	Conducted works before the test-run at the installation place
Exterior Piping Work	Customer	Chilled water(hot water), cooling water, gas contact piping works
Exterior Wiring Work	Customer	Control panel first power work (main power, control power) and all electric wiring work mutually contacting between the control panel and customers' facilities
Air supply fan or ventilation fan	Customer	For the ventilation when installing the chiller at indoor
Building and Base	Customer	
Nitrogen Gas Supplement	Customer	Means gas supplement for the chiller storage (when the equipment is not operated for a long time after the test run) after the test run at the site.
Test Run and Operation Training	LG Electronics	Conduct two times (one day) for eight hours (The customer supplies required electricity, fuel, chilled water, and cooling water, etc.)

### 4. Supply Scope

No	Item	Remark
1	Absorption Chiller-Heater Body	
2	Absorbent (LiBr)	Bring in separately from the equipment
3	Refrigerant (H <sub>2</sub> O)	Bring in separately from the equipment
4	Burner	Bring in separately from the equipment
5	Micom	Bring in separately from the equipment
6	Chiller-Heater Instruction Manual	3 copies

### 5. Warranty and Service

5.1 The warranty period of the product terminates either "1.5 years after the product delivery" or "one year from the test run," whichever comes first.

5.2 For any product failure within the warranty period due to the components or materials of this machine or works, LG Electronics examine it and repair it free of charge if that failure is acknowledged.

5.3 Free repair is not provided for the following cases.

- 1) The failure occurred after the product is repaired in the other shop other than designated store
- 2) It is evident that the failure occurred due to the customer's mistake in use and handling
- 3) The product has been resold or transferred to others during

warranty period

- 4) The failure was caused by fire or natural disaster

### 6. Others

6.1 Before manufacturing the chiller, submit all facts regarding manufacturing to the customer, and manufacture after re-receiving customer's approval.

For any item not specified in this specification, discuss with the customer and receive an approval before implementing it. 6.2 You should notify LG Electronics if you resell or transfer the product before scrapping it.

# ***Guide specification***

## ***Hot-water fired Absorption Chiller (WCMH Series)***

### **Contents**

- 1. Application Scope*
- 2. Equipment Specification*
- 3. Work Scope*
- 4. Supply Scope*
- 5. Warranty and Service*
- 6. Others*

## 1. Application Scope

This manufacturing specification is applied to all models of the absorption chiller MH-Series.

## 2. Equipment Specification

### 2.1 General

2.1.1 The absorption chiller MH-Series uses the hot water. The microcomputer controls cooling capacity in PID (proportion, integration, differentiation).

2.1.2 Lithium Bromide (LiBr mass concentration 55%) added with anticorrosive agent (Mo type) is used for absorbent, and distilled water (H<sub>2</sub>O) is used for refrigerant.

2.1.3 The steel sheet and pipes are surface treated to prevent corrosion.

2.1.4 To check any leakage of the stored product before transportation and test-run and to prevent air infiltration, nitrogen gas of 0.3 Kg/cm<sup>2</sup>G is filled.

### 2.2 Components

2.2.1 Upper part (Generator, Condenser)

2.2.2 Lower part (Evaporator, Absorber)

2.2.3 Heat exchanger

2.2.4 Purge system (including a purge pump)

2.2.5 Absorbent pump and refrigerant pump

2.2.6 Control device

### 2.3 Manufacturing Specification

2.3.1 Upper part (Generator, Condenser)

1) It is a Shell & Tube type heat exchanger and consists of a low-temperature Regenerator and a condenser.

2) High-efficiency heat-transfer tube which is specially processed is used for the heat transfer tubes in the low-temperature regenerator and the condenser.

3) The heat-transfer tube should also be assembled with mechanical extension pipe by a tube plate so that it can be replaced.

4) Install an eliminator between the low-temperature regenerator and the condenser to prevent absorbent from moving over to the condenser with the refrigerant steam generated at the low-temperature regenerator.

5) The maximum use pressure of cooling water is 16kg/cm<sup>2</sup>G.

2.3.2 Lower part (Evaporator, Absorber)

1) It is a Shell & Tube type heat exchanger and consists of an evaporator and an absorber.

2) High-efficiency heat-transfer tube which is specially processed is used for the heat transfer tubes in the evaporator and the absorber.

3) The heat-transfer tube should also be assembled with mechanical extension pipe by a tube plate so that it can be replaced.

4) Install an eliminator between the evaporator and the absorber to prevent absorbent from moving over to the

evaporator.

5) Absorbent and refrigerant are sprayed evenly on the surface of the heat-transfer tube by gravity and capillary through installing a tray at the top of the evaporator and absorber and don't use the spray nozzle which needs the power of a pump.

6) Install a bypass pipe between the evaporator and the absorber so that pure refrigerant can be regenerated by bypassing the refrigerant from the evaporator to the absorber in case the refrigerant is contaminated.

7) Install a water cut-off switch at the chilled water to prevent chilled water from being frozen.

8) The maximum use pressure of chilled water and cooling water is 10kg/cm<sup>2</sup>G.

2.3.3 Heat exchanger

1) Use high efficiency compact type plate heat exchanger. STS430 which has superior corrosion resistance is used for the interior material of the heat exchangers.

2.3.4 Purge system

1) It consists of vacuum pump, separator, low chamber, vacuum pressure transmitter in the range of 0-700mmHg, and control valve and prints out the pressure in digital.

2) Apply a high-efficiency purge system with the absorbent nozzle spray type and improve the screw contact parts in weldment structure to improve vacuum maintenance capacity so that purge system control number by the vacuum pump is reduced.

3) Digital auto purge system (Option)

It completely collects and stores non-condensable gas inside the machine during machine operation, and in case the purge tank pressure reaches the setting value, the vacuum sensor detects it, and value control and vacuum pump operation is automatically made to exhaust the non-condensable gas.

2.3.5 Absorbent pump and refrigerant pump

1) It doesn't need separate lubricant and cooling devices and uses the Non-Seal Canned Motor Pump which houses all revolving parts such as a pump and a motor in a closed case to maintain the inside of the chiller vacuum.

2.3.8 Control Device

1) Structure of Control Panel

The control panel consists of microcomputer (Master/Slave Board, Display Board, Relay Board), power supply device for stable power supply, circuit breaker for other control or safety, electronic contactor, and relay for control. Major functions of each module are as follows.

2) Master/Slave Board

Main module should be applied with a high performance microprocessor and conducts the control function optimized to the mechanical devices, and the high-precision A/D (analog/digital) converter should measure various temperature sensors and display or apply in control. Also, RS-485 communication port is embedded to support



customer's remote monitoring and control so that simple control can easily respond to customers' automated buildings.

### 3) Display Board

Display board is composed of setting value required for various operation data and machine operation, display which shows abnormal data in text, key input which inputs various data or selects menu, and LED lamp display which shows major status of the equipment such as machine operation/stop important to machine operation, absorbent pump, refrigerant pump, purge pump, abnormality, etc. Especially, for those control devices the operator uses frequently, they should be controlled by direct key use, and other controls can be made by selecting menu to enhance operator convenience.

The control keys are composed of six menu control keys, three manual control valve control keys, three manual purge pump control keys, and two operation/stop keys for operation/stop. In preparation of the control key failure, manual control menu can control. Also, the display can display operating status in Korean, Chinese, or English selected by the operator, which enhances operator's convenience.

### 4) Relay Board

Input/output module should be composed of digital input which checks various switches' operation and digital output which controls machine operation. Also, input/output module should be installed with a photo coupler to cut-off various noises, and by letting all data transmitted/received with the main module by communication, the malfunction caused by electronic wave occurring when the data are transmitted/received with normal cables should be prevented, which secures high reliability.

## 2.3.9 Characteristics of Control Device

### 1) Convenient Operating Data Management

A seven-inch color LCD is applied so that much operating information can be checked in one screen, and the customer saves 300 times of analog data (example: temperature data) by each channel so that he/she can use for daily operation record or maintenance.

Also, the trends of temperature change can be easily understood by graphing chilled and hot water outlet temperature and high-temperature regenerator temperature in real time.

### 2) Self Diagnosis and Failure History Record

The microcomputer monitors the machine status during stop or operation and notifies the operator by using screen message, alarm lamp, or buzzer and at the same time automatically records the time and failure data which can be easily used during maintenance. Especially, failure type should be classified to warning and abnormality so that if a warning notice should be issued, its content is expressed in text and the operation continues, which minimized

unnecessary machine stops.

### 3) Optimized Artificial Intelligence Control Algorithm

#### • Soft startup

Slowly control the heat input to prevent any machine impact caused by sudden heat supply in startup.

#### • Advanced Digital PID Control

The digital PID control linked with soft startup should automatically recognize the optimal PID control point in startup or when the operation mode changes from manual to auto and reflect it to control equations so that unnecessary machine stops is to be minimized, and stable and precise temperature control can be made.

#### • Preventative Operation against Crystallization

Measure the temperature of each part during operation to calculate density and conduct first and second preventative operation based on that result so that an abnormality is prevented in advance.

#### • Preventative Operation against High Temperature

Occurrence at the High-temperature Regenerator Monitor the temperature change of the high-temperature regenerator at all times and conduct a preventative operation before the temperature of the high-temperature regenerator becomes too high.

#### • Responsive Control to Cooling Water Temperature

Higher efficient operation is possible by controlling fuel heat input depending on the cooling water inlet temperature.

#### • Optimal Dilution Operation Cycle Control

When stopping operation, the algorithm of the micro-computer varies the operation hours of the refrigerant pump and absorbent pump No. 1 depending on absorbent the temperature of the high-temperature regenerator so that shortened dilution operation can save the operating cost of auxiliary devices. Also, when restarting, the immediate cooling/heating operation startup is possible without a separate dilution operation.

#### • Scheduled Operation Function

Apply the schedule operation function which can select operation/stop by day up to 11 times or by dates and holidays and control temperature setting to enhance the convenience of machine operation (scheduled operation).

#### • Operating Function against Power Breakdown

This function checks power breakdown schedule at the controller and conducts the functions such as auto restart, auto dilution operation, warning, etc. in accordance with the power breakdown time.

#### • Absorbent Pump Inverter Control

By the variable control (stepless control) depending on the rotation number of the absorbent pump and controlling the absorbent volume circulating from the absorber to the high-temperature regenerator, partial load efficiency is improved, and the time to reach regulated status is shortened in the initial startup.

#### • Soft Start of the Absorbent Pump

Slowly increase the rotation number for 30 seconds when starting the absorbent pump to prevent any machine impact in startup, which protects the absorbent pump and enhance durability of the piping and heat exchanger.

#### 4) Strong Customer Support Function

- Communication Function for Building Automation and Remote Monitoring Control

This function is equipped with a standard communication function (RS485, Modbus Standard) to connect easily with the monitoring system and provides no-voltage input/output to operate/stop remotely by simple electric wiring or to monitor major operation status of the machine. Also, as an optional specification, BACnet or Lon can be additionally installed to enhance customers' convenience.

- Help Function

This function remembers the content of the failure when it occurs, and when the operator selects it in the menu following the failure content, the function enhances operator's convenience by showing the actions for failure.

#### 2.3.10 Automatic Safety Device

1) Chilled/hot water and cooling water safety device, high-temperature regenerator protection device, motor protection device, absorbent crystallization protection device, and combustion safety device, etc. are included.

2) Chilled/hot water and cooling water safety device

- Chilled/hot water pump Interlock contact
- Cooling water pump Interlock contact
- Chilled/hot water cut-off switch: Chilled/hot water volume less than 50%
- Chilled water temperature(low): Chilled water outlet temperature lower than 2.5°C
- Cooling water temperature(low): Cooling water inlet temperature lower than 19°C for 30 minutes

※ Since operation/stop signal of chilled water and cooling water pumps and the interlock contact are very important safety devices which can prevent chiller freeze and safety accidents, be sure to wire so that the chiller, the chilled water pump, and the cooling water pump are interlocked and operated

※ Also, in case multiple cooling water pipes are connected in parallel, automatic cut-off valve should be installed to prevent water from flowing to the cooling water pipe of the relevant chiller, and then the automated cut-off valve should be installed to open and close in link with LG Electronics control devices. The automatic cut-off valve should open and close in link and synchronization with the operation/stop signal of the cooling water pump provided by LG Electronics.

- Details should be consulted with LG Electronics.

3) Generator protection device

- Generator temperature(high): above 105°C

4) Motor protection device

- Absorbent pump thermos relay

- Refrigerant pump thermos relay

- Purge pump thermos relay

5) Automatic absorbent crystallization protection device

- Absorbent over flow: resolve initial crystallization symptom
- Refrigerant over flow: automatic adjustment of the maximum load density

## 3. Work Scope

Item	Owner	Remark
Body Painting	LG Electronics	Body: Morning Gray Control Panel: Warm Gray
Insulation	LG Electronics	Warm insulation: NBR 19mm, Glass wool 75, 25mm Cold insulation: NBR 19mm
Delivery and Installation	LG Electronics	Deliver to the base and install
Leakage Test, Absorbent and Refrigerant Charge	LG Electronics	Conducted works before the test-run at the installation place
Exterior Piping Work	Customer	Chilled water(hot water), cooling water, gas contact piping works
Exterior Wiring Work	Customer	Control panel first power work (main power, control power) and all electric wiring work mutually contacting between the control panel and customers' facilities
Air supply fan or ventilation fan	Customer	For the ventilation when installing the chiller at indoor
Building and Base	Customer	
Nitrogen Gas Supplement	Customer	Means gas supplement for the chiller storage (when the equipment is not operated for a long time after the test run) after the test run at the site.
Test Run and Operation Training	LG Electronics	Conduct two times (one day) for eight hours (The customer supplies required electricity, fuel, chilled water, and cooling water, etc.)

## 4. Supply Scope

No	Item	Remark
1	Absorption Chiller-Heater Body	
2	Absorbent (LiBr)	Bring in separately from the equipment
3	Refrigerant (H <sub>2</sub> O)	Bring in separately from the equipment
4	Burner	Bring in separately from the equipment
5	Micom	Bring in separately from the equipment
6	Chiller-Heater Instruction Manual	3 copies

## 5. Warranty and Service

5.1 The warranty period of the product terminates either "1.5 years after the product delivery" or "one year from the test run," whichever comes first.

5.2 For any product failure within the warranty period due to the components or materials of this machine or works, LG Electronics examine it and repair it free of charge if that failure is acknowledged.

*5.3 Free repair is not provided for the following cases.*

- 1) The failure occurred after the product is repaired in the other shop other than designated store*
- 2) It is evident that the failure occurred due to the customer's mistake in use and handling*
- 3) The product has been resold or transferred to others during warranty period*
- 4) The failure was caused by fire or natural disaster*

*6.1 Before manufacturing the chiller, submit all facts regarding manufacturing to the customer, and manufacture after receiving customer's approval. For any item not specified in this specification, discuss with the customer and receive an approval before implementing it.*

*6.2 You should notify LG Electronics if you resell or transfer the product before scrapping it.*



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