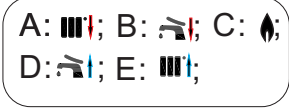
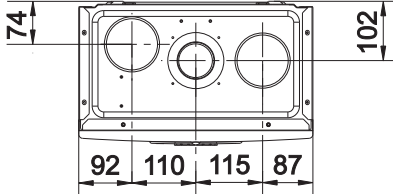
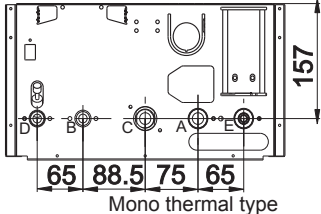
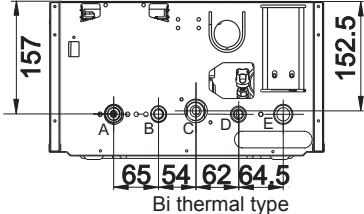
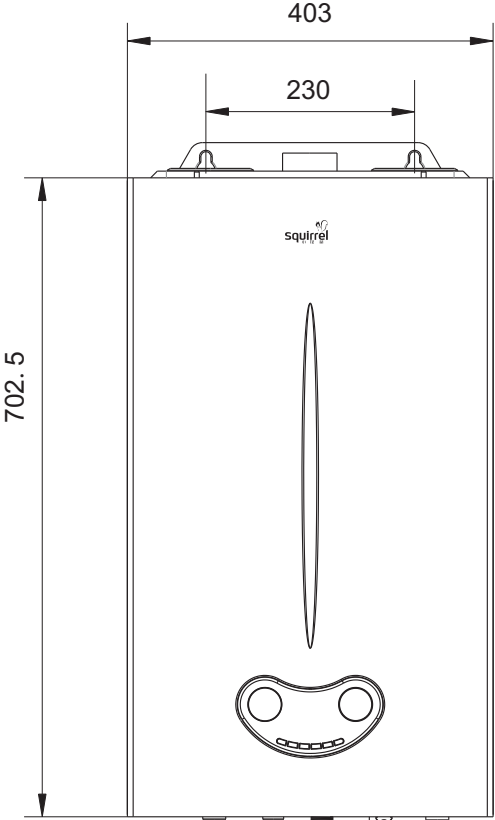


Combination Boiler B12 Manual



Application Range of the Product

Model number	Inside structure	Applicable Gas
DD24-B12	Plate Heat Exchanger	Natural Gas and LPG
SP24-B12	Bi-thermal heat exchanger	Natural Gas and LPG

Remarks: Please refer to the gas type listed on the product.

IMPORTANT:

1. Before using this boiler, Please read this Manual carefully.
2. Please keep this Manual intact.
3. Installation and repair must be completed by our engineer. Other people are forbidden.
4. Improper installation or repair may cause danger to human or economic loss.
5. This boiler must be out of touch from children.
6. In order to make sure of safety, please use our accessory and provided components.
7. Do not discard the packing in public region.
8. If you have any problem, please contact local distributor.

1. On special occasions and under special circumstances such as low temperature, high humidity and minimum output adjustment; there may be some condensation from the emission of combustion. If so, there is "white fume" at the end of the flue gas pipes.

2. This is normal and will not pollute the environment. Under normal circumstances, the appliance is highly efficient and energy saving.

3. This instruction manual contains the following marks:

Attention: which means special attention is necessary and manipulation should be carried out by technical person(s).

Prohibit: which means manipulation is prohibited.

A Letter to Our Customers

Dear Sir or Madam,

Thank you for choosing the wall-hung boiler for heating and hot water. Undoubtedly, you have chosen an automatic heating appliance with the most incomparable merits.

The purpose of this manual is to instruct and advise you with the correct method to use and maintain this appliance. In order to assure that you can use this appliance satisfactorily in a long term, please carefully read the manual and keep it intact for future use.

Should you have any questions, please contact the service center of local distributors.

The service people of local distributors will provide free-of-charge inspection and adjustment service to you.

This appliance is a boiler with a sealed combustion room, which may be used for heating and hot water at the same time. The boiler combines operation functions, reliability and safety in one system. It is also featured with easy installation. Since an advanced electronic control device is used, it also functions normally at such areas as with very low water pressure and /or fluctuating water pressure. With unique control device and comprehensive safety protection devices, the boiler assures convenience, comfort and safety for our customers.

(Due to constant technical improvement, the following contents are subject to changes without prior notice.)

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1. For user's manipulation

1.1 简介

尊敬的顾客：

感谢您选择了本公司的燃气采暖热水炉，它以设计先进、性能可靠和品质卓越著称请仔细阅读本手册，因为这些是关于安全安装、使用和维护的重要信息。本产品为一高效率的供暖/热设备，集供暖与卫浴用热水为一体，用天然气作为工作媒介，配备有待电子点火的开式烟道燃烧器、强制通风的气密燃烧室和一微处理器控制系统。

1.2 Control Panel

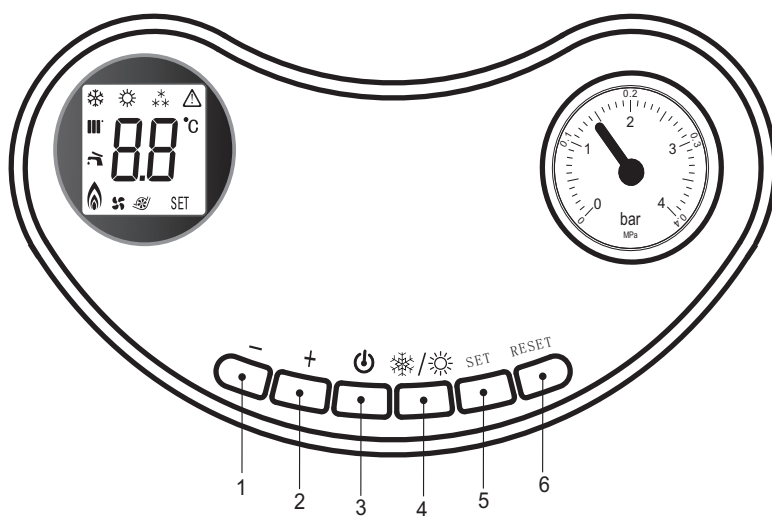
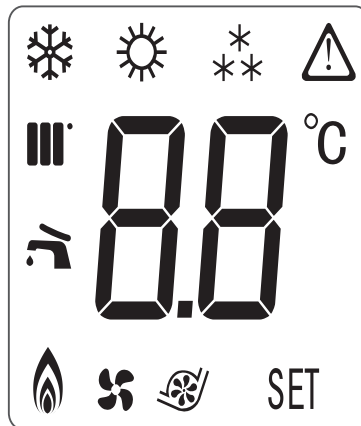











图 1 Control Panel

Name of Button	Illustrate of Button
1 “-” Reduce Temperature	When setting the temperature, one pressed, one 1°C down, When programme the timer, one pressed, time unit goes one interval anticlockwise
2 “+” Increase Temperature	When setting the temperature, one pressed, one 1°C up, When programme the timer, one pressed, time unit goes one interval clockwise
3 “⏻” On/Off	Start or stop the boiler
4 “❄️/☀️” Winter/Summer	Select the winter mode or summer mode
5 “SET” Setting	Select operation status or functions for setting
6 “RESET” Reset	Restart the boiler

1. 3 LCD display explanation:



	Winter mode	Supply heating and domestic water
	Summer mode	Only supply domestic water for bathing
	Anti-frozen	The anti-frozen function is startup
	Caution mode	Indicating instant malfunction and check the malfunction code from the LED display
	Domestic water mode	Supplying domestic water
	Heating mode	Supply heating
	Burning status	Boiler is working; bigger frame means higher output capacity
	Fan status	Fan is running
SET	Setting status	Boiler is being set
	Pump status	Pump is running
88	Temperature and code indicator	Indicating instant temperature or preset temperature or malfunction code
°C	Degree Centigrade indicator	Indicating instant the logo is Temperature

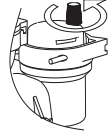
Warm Notice All takes material object as the standard.

1. 4 Operating instructions

1. 4. 1 Affusion and Water Filling

Affusion:

(1) Before affusion, turn on the automatic air-venting valve on the recycling pump and the air-venting valve on the end of the heating system.

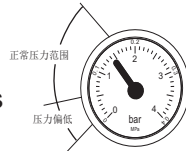


(2) Fill softened water into the preset position for affusion on the pipe of heating system.



Double-pipe heat exchanger model Plate type model

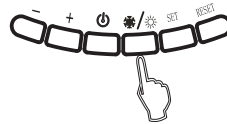
(3) Observe the water pressure meter on the panel, stop filling in water when the meter handpoints to 1-1.5bar.



(4) Press the function key (as shown in the figure), turn off the boiler and then turn on the gas valve.



(5) Press the function key and change to the winter mode (as shown in the figure), check the boiler whether running.





Water Filling

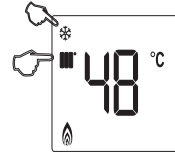
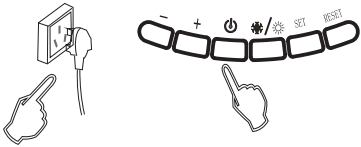
- (1) Check whether there is water leakage from the heating system; make sure the system is sealed wholly.
- (2) Switch off the machine and power supply.
- (3) Turn the affusion/ refilling water valve one round anticlockwise.
- (4) Observe the water pressure meter till the meter hand points to 1-1.5bar, then turn the handle clockwise and close the valve.
- (5) Restart the machine.

Caution: Switch of the power supply when affusion to avoid electricity leakage. After finished the refilling, the affusion / refilling water valve must be tightened, otherwise the boiler will overflow because of over pressure.

1.4.2 Heating season (Winter):


Run the heating function

- (1) Turn on the gas and the power supply, press the button “” on the panel and the LCD displays the present setting mode “OF”, is showing:
- (2) Press the button “/” to select heating in winter mode, is showing:
- (3) Winter mode, the heating model was defaulted at first, is showing:



Operating mode in winter

Set the temperature of heating water

- (1) Press the SET button, the symbol of  and SET appear, LCD displays the last time temperature. Enter the setting of heating mode as showed in the chart:
- (2) Press + or - to increase or decrease the temperature.




屏幕显示内容



1.4.3 Domestic hot water mode(winter):


Run the hot water function(winter)

- (1) Press the button “/” select the winter mode, is showing:
- (2) Open the water tap and running the domestic hot water mode, is showing:



Operating mode in winter

Set the temperature of domestic hot water(winter)

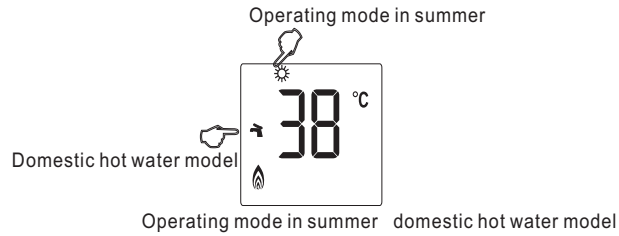
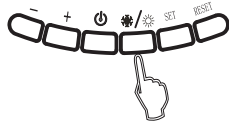
- (1) Press the SET button, the symbol of SET and , LCD displays the present temperature for hot water, enter the setting of the bathing as showed on the right Chart.
- (2) Press + or - to increase or decrease the bathing water temperature.



1.4.4 Non-heating season (summer):

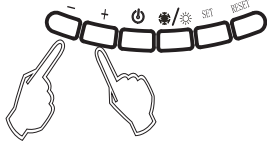
Run the hot water function(summer)

(1) Press the button “☀/☁” select the summer (2) Open the water tap and running the domestic hot water mode, is showing:



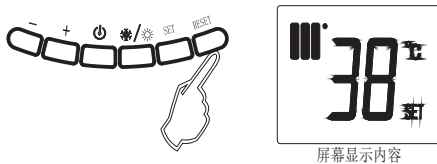
Set the temperature of domestic hot water(summer)

Press + or - to increase or decrease the bathing water temperature, is showing:



1.4.5 RESET:

Press RESET button to restart the boiler when the boiler appear any error, if the boiler fail to restart or this malfunction occurs frequently, please contact the technician.



Caution: if the boiler still not working after reset, please contact the professional organization or technician for repairing, or contact the local after sales service for repairing, in order to avoid accident.

2. Installation and Maintenance

2.1 Important

The product must be installed by our engineer or other qualified staff, other people are forbidden.

2.2 Pre-installation Instructions

- (1) The installation of coaxial flue pipe should be in accordance with the local standard, the distance between the flue pipe outlet and the surrounded building outlet should also in accordance with the local standard.
- (2) Coaxial flue pipe must be also installed, ensure the ventilating system of the flue pipe not be blocked.
- (3) The distance between the coaxial flue pipe and it's above building must be more than 45mm, please refer to Chart 2.5, P10, the outlet of the flue pipe must be placed at where cause no damage to public.
- (4) Please refer to Chart 2.3, P10 for the installation of coaxial flue, the pipe lap length must be no less than 20mm. All the joints must be well sealed to prevent the flue gas flow back to the inside.
- (5) The flue pipe shall be installed with a 2-degree slope down to prevent the rain, snow, condensing water flow back to the boiler.
- (6) Do not place the coaxial pipe into the ceiling or combustible wall. If it unavoidable, please cover the flue pipe with refractory material thicker than 20mm.
- (7) The gap between the flue pipe and wall shall be sealed with standard flange seal, to make it convenient for maintenance.
- (8) If the user do not install the flue pipe accordingly, it may cause damage to the product working performance and create noise even security risks.

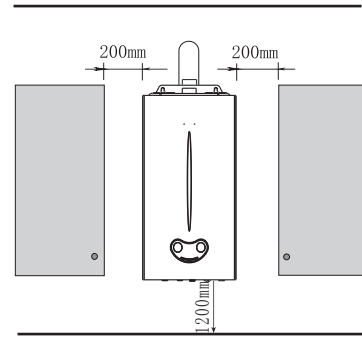
2.3 Cautions for Installation

- (1) Do not install the boiler near any combustible materials.
- (2) The wall on which the boiler is installed must be able to support a weight of 50kg and its material should be incombustible. If it's made of combustible, it should be covered with anti-combustion material thicker than 3mm.
- (3) Do not install the product under any dangerous shelter exposed to falling articles.
- (4) It is forbidden to install the boiler above other gas appliance.
- (5) The exit of the flue gas pipe shall be positioned at a place with good ventilation.
- (6) It shall use waterproof power outlet with good grounded performance.
- (7) All the connecting pipes of the boiler should not be used as the grounded wire of electrical appliance.
- (8) The boiler shall be installed at where convenient for the connection of ventilating pipe, heating and hot water system pipes.
- (9) After the installation, the engineer shall identify the position of the venting system and teach the user the right way to use the safety equipment.

2. 4 Installation

2. 4. 1 Fix the Hanging Board for Installation

- (1) The min. space should be allowed for the maintenance purpose, as shown on the right picture 2.1.
- (2) Fixed installation template of flue pipe on the wall.
- (3) Mark the fixing points and drill holes on the wall.
- (4) Fix the hanging board on the wall with screws



安装位置示意图 图2. 1

2. 4. 2 Spare parts of flue pipe

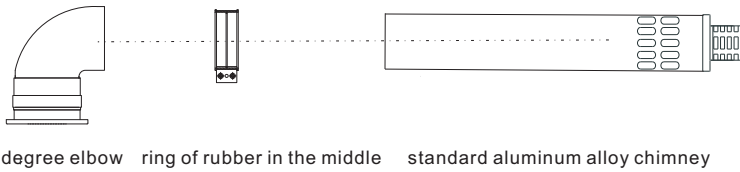
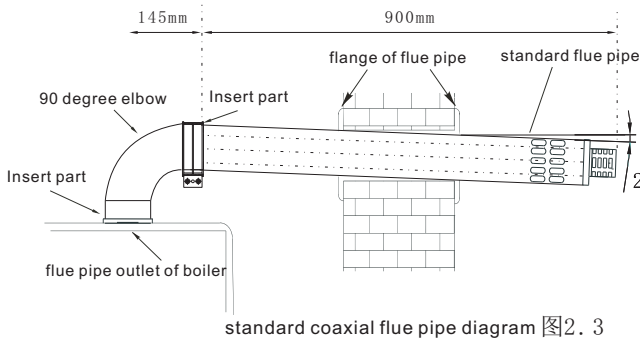
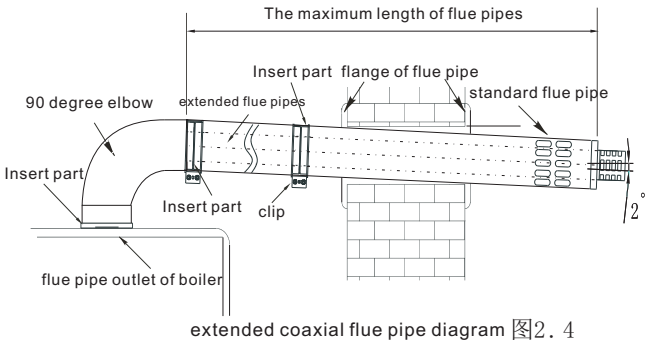


图2. 2

2. 4. 3 Installation of flue pipe diagram

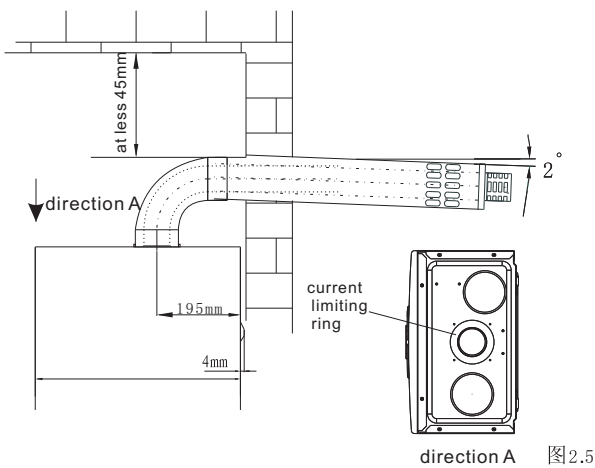


standard coaxial flue pipe diagram 图2. 3



extended coaxial flue pipe diagram 图2. 4

2. 4. 4 Installation of flue pipe



direction A 图2.5

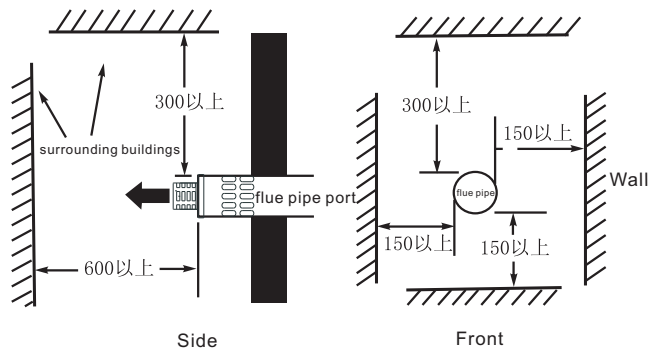


图2. 6

2. 4. 5 Cautions for Installation of flue pipe and flow-limiting ring

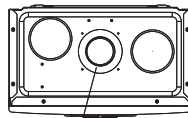
It could increase the extended flue pipes and flow-limiting ring according the requirement installation. It must finish as following work before installation.

(1) Determine the length of flue pip

The maximum length (m)	It must reduced a little length when increase one elbow.(m)	
The level of connection	90-degree elbow	45-degree elbow
2. 9	0. 8	0. 5

(2) Installation flow-limiting ring of gas boiler

The maximum length (m)	flow-limiting ring
Less than 1m	with
more than 1m	without



flow-limiting ring

3. Repair and maintenance

All the regulation, conversion, start and maintenance operation must be carried out by qualified staff. For all the damage and personal injury caused by arbitrarily device modified by unqualified or unauthorized staff, our company is not responsible for that

3. 1 Specialist Interface (Do not recommended)

In the state of power-on or malfunction, press the "SET" key for 3 sec. to enter the code setting interface.



Instruction: The default password is "88"

The initial display is "00", please set by pressing the "+" "-" key. While the code is correct, press the "SET" key to enter the specialist interface. If the code is wrong, press the "SET" key and back to "00" and re-enter. You will firstly enter the maximum kilowatt adjustment interface while the code is correct.



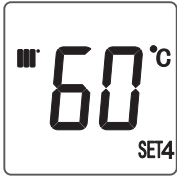
Instruction: the setting range 40-99, regulate by pressing "+" "-" key, the initial display is 99 Go on to press "SET" key to enter the interface of ignition power regulation.



Instruction: the setting range 00-99, regulate by pressing "+" "-" key, the initial display is 30 Go on to press "SET" key to enter the interface of minimum power regulation.



Instruction: the setting range 00-39, regulate by pressing “+” “-” key, the initial display is 00
Go on to press “SET” key to enter the interface of maximum heating temperature setting.



Instruction: the setting range 60-85, regulate by pressing "+" "-" key, the initial display is 60.
(60 for floor heating and 85 for radiator)
Go on to press "SET" key to enter the interface of heating temperature setting.



Instruction: the setting range 5-25, regulate by pressing "+" "-" key, the initial display is 15.
Go on to press "SET" key to enter the selection interface of regular running mode and energy-saving running mode.



Instruction: Regular running mode: heating stable burning: pump keep spinning in heating standby state. "01" represent energy-saving running mode. Energy-saving running mode: system stopped running after the heating water reach to the preset temperature for 3 minutes. In heating standby mode, the pump runs four minutes every four minutes. "02" represent "+" "-" adjustment. The system default mode is "01"

3.2 Malfunction and Solutions

Phenomenon	General reasons	Solutions	
Deflagration sound	Gas adaptability	Contact the after-sales staff	
Pressure drop indicated by water gauge	Pipe leaks	Check the leaks position or contact the after-sales staff	
Display code	E1	Malfunction of ignition	Check the gas valve to ensure the gas supply
	E2	Malfunction of overheating protection	Contact the after-sales staff
	E3	Malfunction of ventilation	Reset 2-3 times or contact the after-sales staff
	E4	Malfunction of water shortage	Filling water to 1bar-1.5bar
	E5	Malfunction of slash fire	Contact the after-sales staff
	E6/E7	Malfunction of temperature sensor	Contact the after-sales staff
	E9	Malfunction of heating system	Contact the after-sales staff to check if the system frozen
Domestic water is not hot	Hot water pipes blocked	Clean the filter and pipes	
	Low water flow	Ensure the water follow or add a extra pump	

3.3 Maintenance

⚠ Before the maintenance, please cut off the power and gas supply.

Maintenance items	1 year/time	2 years/time
Inspect the inside of combustion chamber by eyes, to clean the oxide and burner nozzle if necessary.	●	●
Inspect the heat exchanger by eyes to check if the fins are overheated, to clean the scales in the heat exchanger if necessary.	●	●
Inspect and clean the scales in fan and pressure pipe.	●	●
Inspect the position of ignition and detection electrode, clean the carbon deposit on the head of electrode.	●	●
Inspect the gas flow both in maximum kilowatt state and minimum kilowatt state.	●	●
Inspect the running pressure of the safety valve.	●	●
Inspect the ignition and flameout function both in hot water mode and heating mode	●	●
Inspect the gas shortage protection devices	●	●
Inspect and ensure the chimney installed properly and no block phenomenon	×	●
Inspect the electrical and electronic components	×	●
Combustion analysis	×	●
Inspect and lubricate the waterway components	×	●
Clean the secondary heat exchanger	×	●
Inspect and clean the temperature sensor both of heating and hot water system	×	●
Inspect the filter of water flow sensor and the turbine	●	●
Inspect the pressure of expansion tank	×	●
Clean the filter in the relief valve of the cold water pipe	×	●
Inspect the inside waterway and gas pipes and ensure the joints are well sealed	×	●

Ps: maintenance shall follow the above instructions. “●” means the necessary operation “×” means the forbidden operation

维修和检查人员在产品维修后应在产品上进行标示维修和检查的结果。

4. Technical characteristics and parameters

4.1 Technical parameter chart

Heating

Product Model	SP24-B12/SD24-B12	Unit
Gas type	NG(12T)	
Rated input capacity	26.7	kW
Rated output capacity	24	kW
Min. input capacity	11.2	kW
Min. output capacity	9.5	kW
Heat efficiency	90	%
Working pressure of heating system	0.05~0.3	MPa
Max. heating water temperature	90	°C
Adjustment range of heating water temperature (±3°C)	散热器:40~85(地暖:35~60)	°C
Rated electric power	125	W
Degree of electrical protection	I类	
防水等级	IPX4D	
Expansion tank volume	7	L
Expansion tank preload	0.1	MPa
Heating area	60~200	m ²
Power supply	~220V/50Hz	
Reference Natural Gas consumption (NG 12T)	1.12~2.65	m ³ /h
Net weight	28/29	kg

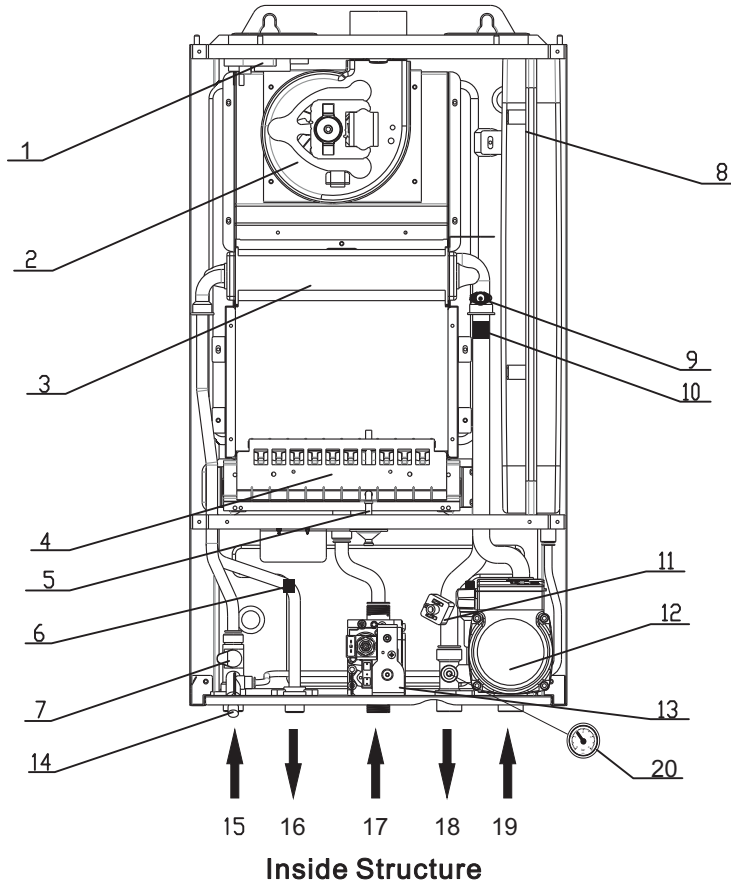
Domestic hot water

Max. working temperature	0.5	MPa
Min. working temperature	0.03	MPa
Hot water capacity with $\Delta t=30K$	10	kg/min
Adjustment range of hot water temperature(±3°C)	35~60	°C
Min. hot water flow	2.5	kg/min
Water flow in stable temperature	>6	kg/min
Limited flow	10	kg/min

Gas pressure

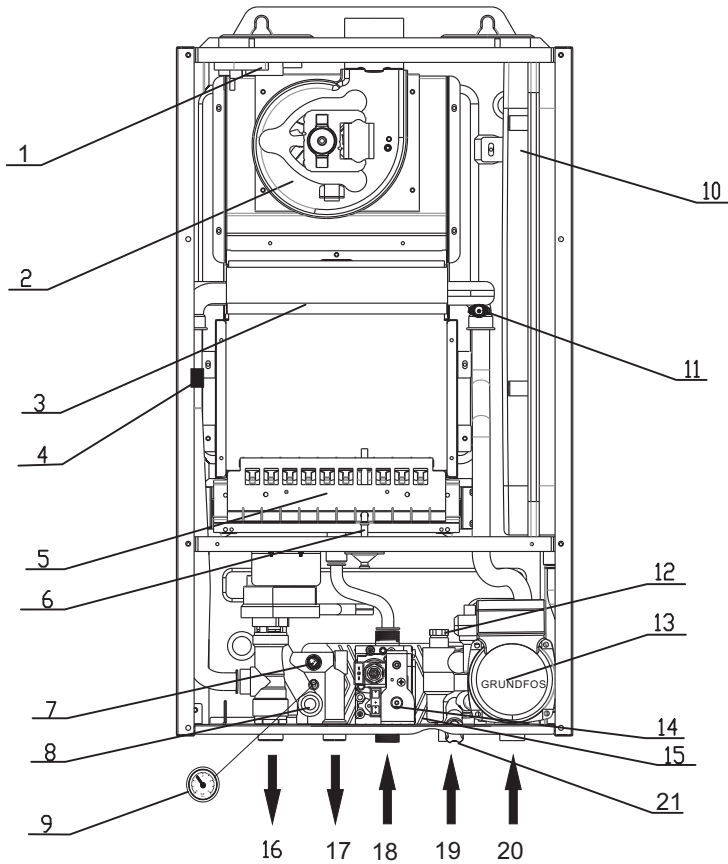
Rated natural gas pressure	2000	Pa
----------------------------	------	----

4.2 Inside Structure and Main Components SP-B12 Double-pipe heat exchanger model



1	Leeway Switch	11	Valve of water pressure difference
2	Fan	12	Heating Circulated Pump
3	Main Heat Exchanger	13	Gas Valve
4	Burner	14	Affusion/Refilling Water Valve
5	Electrode for Ignition & Flame Detection	15	Tap Water Inlet
6	Sensor of Domestic Hot Water Temperature	16	Domestic Hot Water Outlet
7	Flow Switch	17	Gas Inlet
8	Expansion Tank	18	Heating Water Outlet
9	Limit temperature sensor	19	Heating Water Inlet
10	Sensor of heating temperature	20	Water Gauge

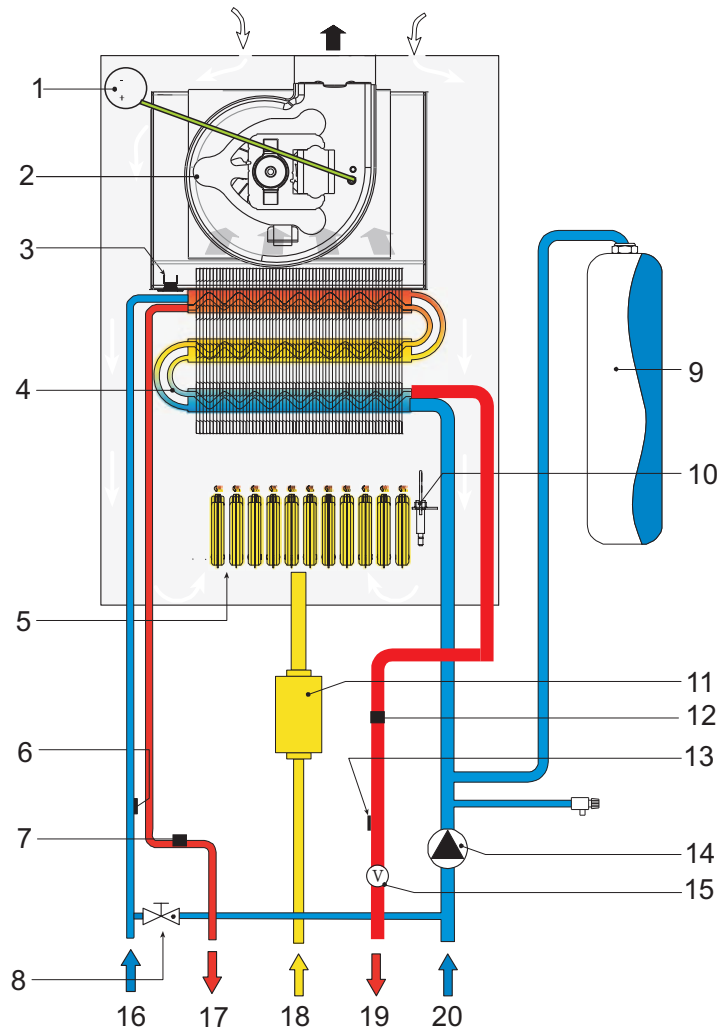
SD24-B12Plate type model



Inside Structure

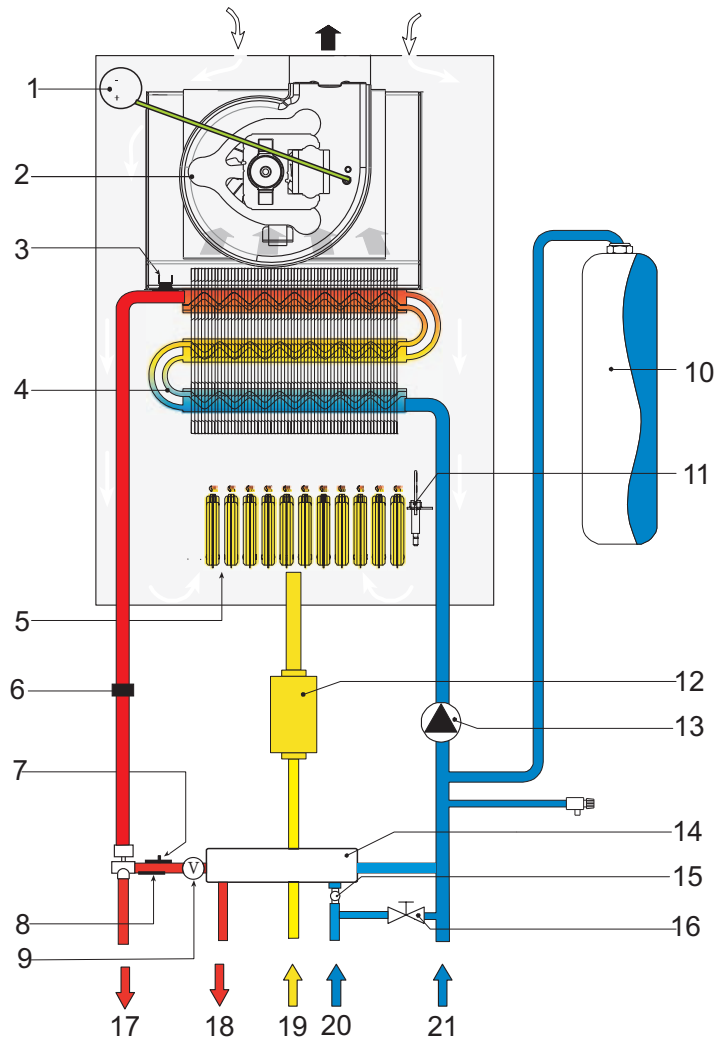
- | | | | |
|----|--|----|--------------------------------|
| 1 | Leeway Switch | 12 | Flow Switch |
| 2 | Fan | 13 | Heating Circulated Pump |
| 3 | Main Heat Exchanger | 14 | Gas Valve |
| 4 | Sensor of heating temperature | 15 | Plate heat exchanger |
| 5 | Burner | 16 | Heating Water Outlet |
| 6 | Electrode for Ignition & Flame Detection | 17 | Domestic Hot Water Outlet |
| 7 | Sensor of Domestic Hot Water Temperature | 18 | Gas Inlet |
| 8 | Valve of water pressure difference | 19 | Tap Water Inlet |
| 9 | Water Gauge | 20 | Heating Water Inlet |
| 10 | Expansion Tank | 21 | Affusion/Refilling Water Valve |
| 11 | Limit temperature sensor | | |

4.3 Working Principle



SP24-B12 Working Principle Diagram for One Heat Exchanger Model

- | | | | |
|----|--|----|------------------------------------|
| 1 | Leeway Switch | 11 | Gas Valve |
| 2 | Fan | 12 | Sensor of heating temperature |
| 3 | Limit Temperature Sensor | 13 | Valve of water pressure difference |
| 4 | Main Heat Exchanger | 14 | Heating Circulated Pump |
| 5 | Burner | 15 | Water Gauge |
| 6 | Flow Switch | 16 | Tap Water Inlet |
| 7 | Sensor of Domestic Hot Water Temperature | 17 | Domestic Hot Water Outlet |
| 8 | Affusion/Refilling Water Valve | 18 | Gas Inlet |
| 9 | Expansion Tank | 19 | Heating Water Outlet |
| 10 | Electrode for Ignition & Flame Detection | 20 | Heating Water Inlet |



SP24-B12 Working Principle Diagram for One Heat Exchanger Model

- | | | | |
|----|--|----|--------------------------------|
| 1 | Leeway Switch | 12 | Gas Valve |
| 2 | Fan | 13 | Heating Circulated Pump |
| 3 | Limited Temperature Sensor | 14 | Plate heat exchanger |
| 4 | Main Heat Exchanger | 15 | Flow Switch |
| 5 | Burner | 16 | Affusion/Refilling Water Valve |
| 6 | Sensor of heating temperature | 17 | Heating Water Outlet |
| 7 | Sensor of Domestic Hot Water Temperature | 18 | Domestic Hot Water Outlet |
| 8 | Valve of water pressure difference | 19 | Gas Inlet |
| 9 | Water Gauge | 20 | Tap Water Inlet |
| 10 | Expansion Tank | 21 | Heating Water Inlet |
| 11 | Electrode for Ignition & Flame Detection | | |

4.4 Inside Connecting Wire Diagram

