CONDENSING BOILER INSTALLATION, OPERATING AND MAINTENANCE MANUAL

ECODENSE WT-S ONE 35 OH
ECODENSE WT-S ONE 35 OH+EX
ECODENSE WT-S ONE 35 BS
ECODENSE WT-S ONE 45 OH
ECODENSE WT-S ONE 45 OH+EX
ECODENSE WT-S ONE 45 BS
ECODENSE WT-S ONE 55 OH
ECODENSE WT-S ONE 55 BS
ECODENSE WT-S ONE 65 OH
ECODENSE WT-S ONE 65 BS

20.02.2024 Rev. 12

www.ecodense.com

DEAR USER,

The Condensing Boilers ECODENSE WT-S ONE 35 OH, ECODENSE WT-S ONE 35 OH+EX, ECODENSE WT-S ONE 35 BS, ECODENSE WT-S ONE 45 OH, ECODENSE WT-S ONE 45 OH+EX, ECODENSE WT-S ONE 45 BS, ECODENSE WT-S ONE 55 OH, ECODENSE WT-S ONE 55 BS, ECODENSE WT-S ONE 65 OH, ECODENSE WT-S ONE 65 BS are constructed and manufactured according to the most advance technological inventions and the safety rules. It is easy to use for our customers.

We recommend that you read this manual and safety warnings thoroughly before the use of the device in order to ensure safe, cost effective and environmental-friendly use.

If you encounter any issue that is not explained clearly in this manual or you could not understand, please contact with our service department.

We thank you for choosing ECODENSE brand.

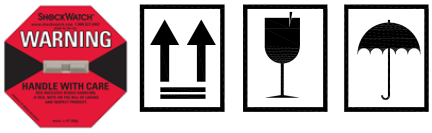
This Operating Manual is an integral part of the device and must be maintained in a plastic dossier and hung at a clearly visible place by the device.

TERMO ISI SİSTEMLERİ SAN.VE TİC.A.Ş.
Esentepe Mah.Milangaz Cad. No:75 K:3
Kartal Monumento Plaza
Kartal/İSTANBUL/TÜRKİYE
Tel: +90 216 442 93 00
Fax: +90 216 370 45 03
www.ecodense.com
e-mail:servis@ecodense.com

CONTENTS

1. WARNINGS

1.1. Warning Symbols and Descriptions

Symbols	Symbol Descriptions
	Important information and useful hints.
	Warning of danger to life or property.
	Warning of electrical voltage.
	Product handling information.
	"Clean the gas line" warning on gas line.
	Carry in an upright position. Fragile Item. Protect against water.

1.2. General Safety Rules

- All personnel engaged in installation, disassembly, commissioning, operation, control, maintenance and repair should have received the necessary training, qualified and fully read and understood this manual.
- No changes that might damage the safety of the device must be made by persons and/or organizations on the device.
- All operation, commissioning and installation works (except for burning adjustment) should be carried out when the device is not operating and after disconnecting the power supply. Noncompliance with these rules may lead to serious bodily injuries and even death by electrical shocks or uncontrolled flame formation.
- Repairs concerned with safety elements should be carried out only by the manufacturing company.
- The device should never be used by children, mentally handicapped and inexperienced persons.
- Children must not be allowed to play with the device.
- Keep the device away from explosive and flammable materials.

If you sense gas leakage;

- Shut down valves of all gas devices.
- Open all doors and windows.
- Do not turn on electric devices or do not turn them off if they are working.
- Do not use burner derived tools such as match and lighter.
- Inform the gas company.

Do not store any inflammable materials in boiler room.

Wear hearing protectors if there is noise in boiler room.

In case of fire or other emergency;

- Switch off the main switch
- Close the main fuel shut-off valve outside the plant.
- Take appropriate actions

Products should be stored in a dry, cool or dry conditioned places . Storage life of our products (service life) is 10 years.

Before commissioning and If there is pressure loss in the system due to seasonal maintenance; After water addition process, it is necessary to carry out that there is absolutely **no air** in the system and **Air removal** must be observed and deaeration must be repeated until you are sure that **there is no air in the system.**

Preventing damage caused by the presence of particles such as dirt, sediment, metal burrs on the heating circuit installation and condensing boiler, for the comfortable and longer service life of the boilers, It is recommended that the installation circuit should be Periodically taken into maintenance plan between 6 months – 1 year period.

BOILER ROOM

Condensing Boilers must be installed in a suitable room/floor with minimum external air openings and sufficient to ensure optimum gas-air mixture combustion, in compliance with the regulations.

Air openings of the boiler room, burner fan intake vents or air ducts must stay open to the atmosphere and Bird cage should be installed in order to prevent any Bird, foreign body entrance

a.The build up of toxic / explosive gas mixtures in the boiler room,

b. Combustion with insufficient air, resulting in hazardous, anti-economical and polluting operation.

The Condensing boiler must be always protected from rain, snow and frost to prevent corrosion and paint deformations.

Keep the condensing boiler room clean and free of solid volatile substances, which could be sucked into the fan and clog the internal boiler or combustion air ducts.

Every **6-12** months, after first commissioning of boiler, the boiler devices should be cleaned with protective chemicals to prevent calcification and resultant blocking and corrosion on the metallic surfaces.

Flushing;

On the Currently operating systems, appropriate chemical solution with the pH range of 4-6 should be selected for cleaning the pipeline installation for safety commissioning the condensing boiler.

In the new building installations and boiler heat exchangers, maintenance should be applied with chemicals with neutral pH (neutral) effect and preventive maintenance must be carried out periodically.

2. TERMS OF WARRANTY

Main and auxiliary equipment and all components used in ECODENSE WT-S ONE 35 OH, ECODENSE WT-S ONE 35 OH+EX, ECODENSE WT-S ONE 35 BS, ECODENSE WT-S ONE 45 OH, ECODENSE WT-S ONE 45 OH+EX, ECODENSE WT-S ONE 45 BS, ECODENSE WT-S ONE 55 OH, ECODENSE WT-S ONE 55 BS, ECODENSE WT-S ONE 65 OH, ECODENSE WT-S ONE 65 BS Condensing Boilers are guaranteed for 1 year by **TERMO ISI SİSTEMLERİ A.Ş.** starting from the date of commissioning under the maintenance, adjustment, operating conditions and relevant mechanic, chemical and thermal effects explained herein.

Please note that this warranty is only valid if the device(s) is commissioned and maintained by our authorized services.

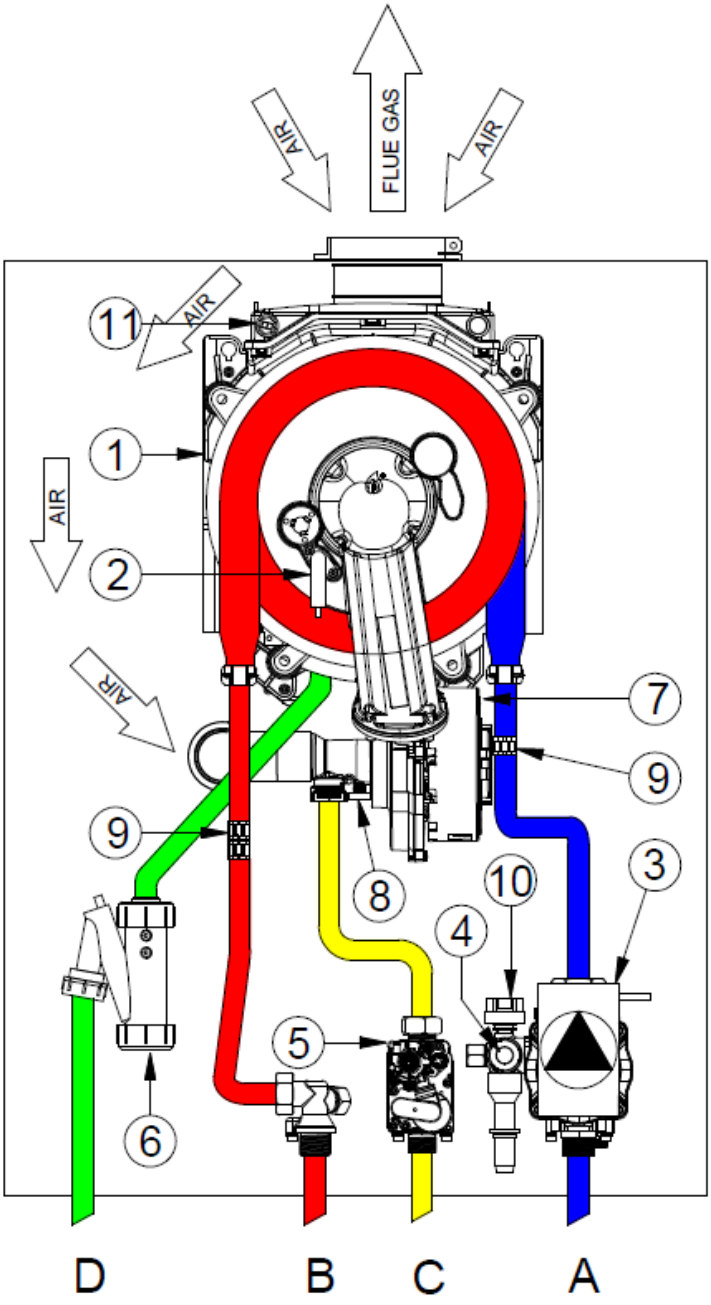
Our company reserves the right to make any modifications on the product and all instructions thereof for improvement purposes.

2.1. Out of Warranty Conditions

- Any damage arising out of or in relation to customers' non-compliance to their responsibilities with regards to installation, commissioning, operation and maintenance,
- Any damage arising out of or in relation to commissioning, repairs and maintenance carried out by unauthorized services,
- Any damage that may occur during transportation or storage of the product,
- Not preserving the product in its original packaging until the installation stage,
- Incorrect and poor electrical connections, Failures due to incorrect voltage applications, frequent repetition of voltage fluctuations,
- Any damage that may occur as a result of incorrect fuel usage or, foreign substances in the fuel used or using of the product without any fuel,
- Any damage that may occur due to foreign particles entered into the product during installation and operation,
- Failures due to incorrect device selection,
- Any damage to unit due to natural disasters,
- Devices without any warranty certificates,
- Warranty Certificates without the stamp and signature of the authorized dealer or service,
- Devices with any falsification on the warranty certificate or without an original serial number.
- The risks during transportation of device under the responsibility of customer belong to the customer.
- Presence of misuse faults are indicated in the reports issued by authorized service stations or our authorized agent, dealer, representative or our factory in case of unavailability of authorized service stations.
- Customers may apply consumer protection arbitrator committee with regards to this report and request for an expert report.

3. CONDENSING BOILER GAS, FLUE GAS AND HEATING WATER SCHEMA

- **WT-S ONE 35/45 OH**



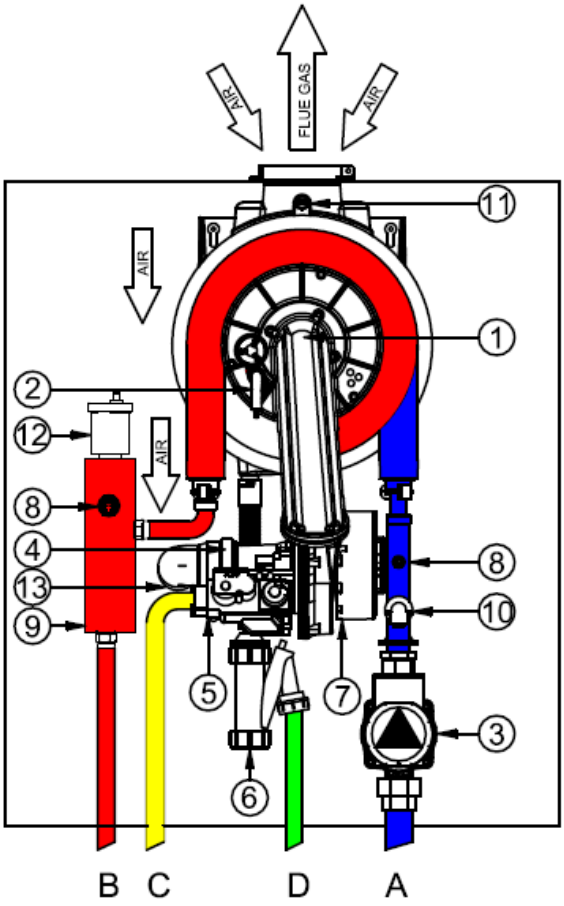
CONNECTIONS

A - CH Inlet
B - CH Outlet
C - Gas Inlet
D - Condensing Water Outlet

MAIN PARTS

1 - Stainless Steel Heat Exchanger
2 - Ignition / Ionization Electrodes
3 - Water Pump
4 - Safety valve
5 - Gas Valve
6 - Yoğuşma Sifonu
7 - Fan
8 - Air / Gas Mikser
9 - Inlet / Outlet Temperature Sensor
10- Pressure Sensor
11- Flue Gas Sensor

- **WT-S ONE 55/65 OH**



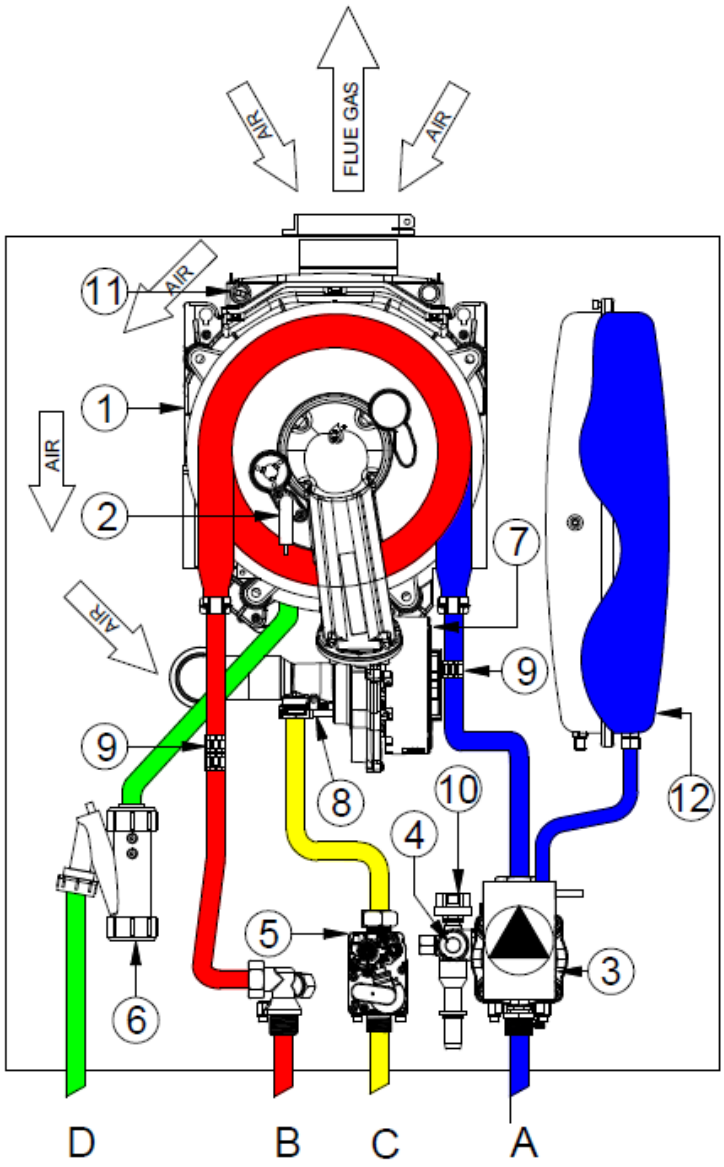
CONNECTIONS

A - CH Inlet
B - CH Outlet
C - Gas Inlet
D - Condensing Water Outlet

MAIN PARTS

1 - Stainless Steel Heat Exchanger
2 - Ignition / Ionization Electrodes
3 - Water Pump
4 - Air / Gas Mixer
5 - Gas Valve
6 - Condensation Trap
7 - Fan
8 - Inlet / Outlet Temperature Sensor
9 - Collector
10- Pressure Sensor
11- Flue Gas Sensor
12- Air Vent
13- Silencer

- **WT-S ONE 35/45 OH+EX**



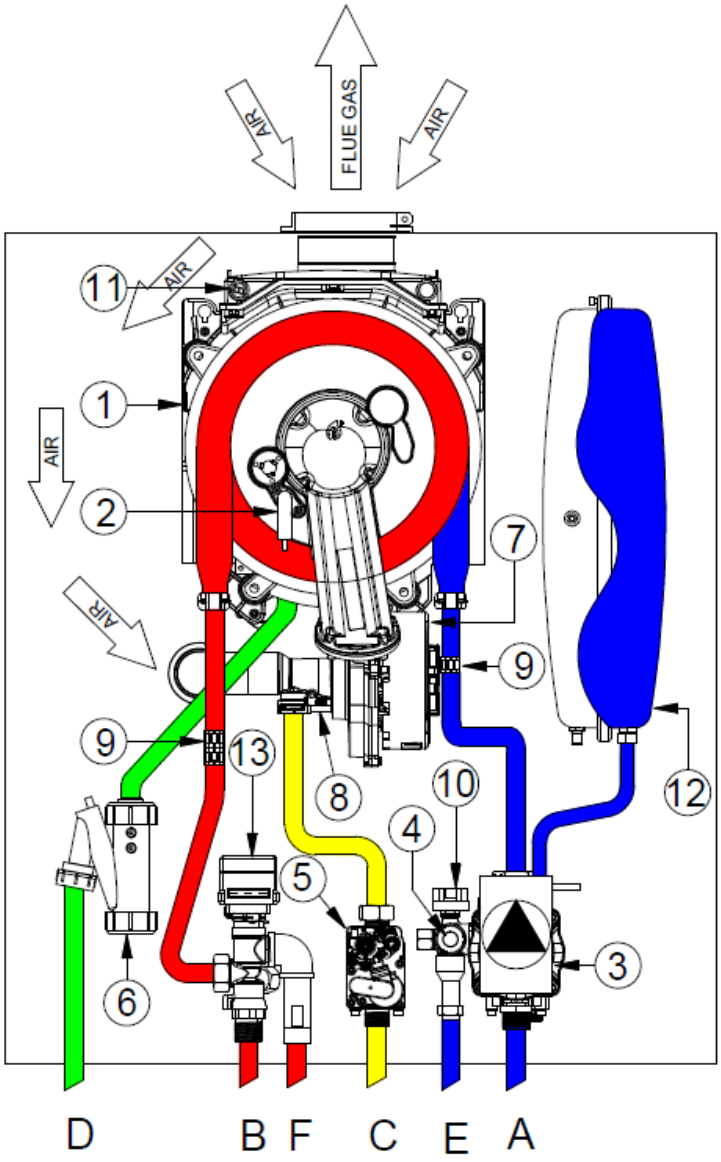
CONNECTIONS

A - CH Inlet
B - CH Outlet
C - Gas Inlet
D - Condensing Water Outlet

MAIN PARTS

1 - Stainless Steel Heat Exchanger
2 - Ignition / Ionization Electrodes
3 - Water Pump
4 - Safety valve
5 - Gas Valve
6 - Yoğuşma Sifonu
7 - Fan
8 - Air / Gas Mikser
9 - Inlet / Outlet Temperature Sensor
10- Pressure Sensor
11- Flue Gas Sensor
12- Expansion Tank

- **WT-S ONE 35/45 BS**



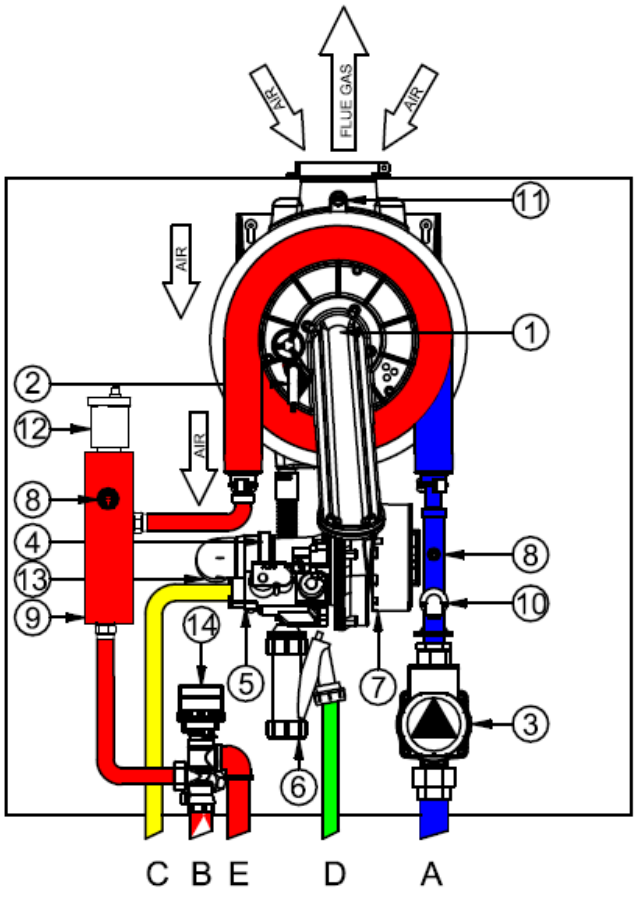
CONNECTIONS

A - CH Inlet
B - CH Outlet
C - Gas Inlet
D - Condensing Water Outlet
E - Domestic Water Inlet
F - Domestic Water Outlet

MAIN PARTS

1 - Stainless Steel Heat Exchanger
2 - Ignition / Ionization Electrodes
3 - Water Pump
4 - Safety valve
5 - Gas Valve
6 - Condensation Trap
7 - Fan
8 - Air / Gas Mikser
9 - Inlet / Outlet Temperature Sensor
10- Pressure Sensor
11- Flue Gas Sensor
12- Expansion Tank
13- 3 Way Valve and Actuator

- **WT-S ONE 55/65 BS**



CONNECTIONS

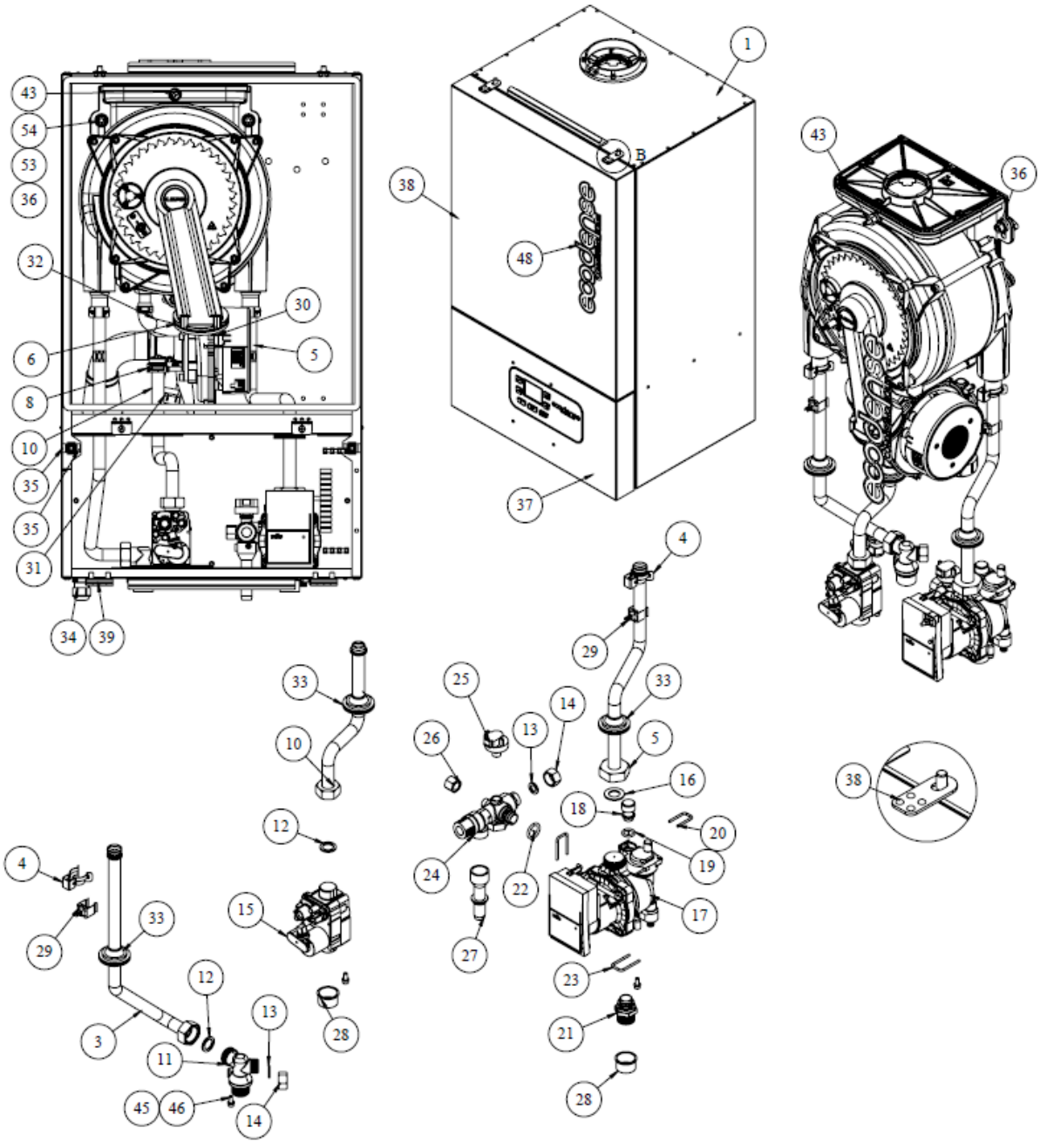
A -CH Inlet
B - CH Outlet
C - Gas Inlet
D - Condensing Water Outlet
E - Domestic Water Outlet

MAIN PARTS

1 - Stainless Steel Heat Exchanger
2 - Ignition / Ionization Electrodes
3 - Water Pump
4 - Air / Gas Mikser
5 - Gas Valve
6 - Condensation Trap
7 - Fan
8 - Inlet / Outlet Temperature Sensor
9 - Collector
10- Pressure Sensor
11- Flue Gas Sensor
12- Air Vent
13- Silence
14- 3 Way Valve and Actuator

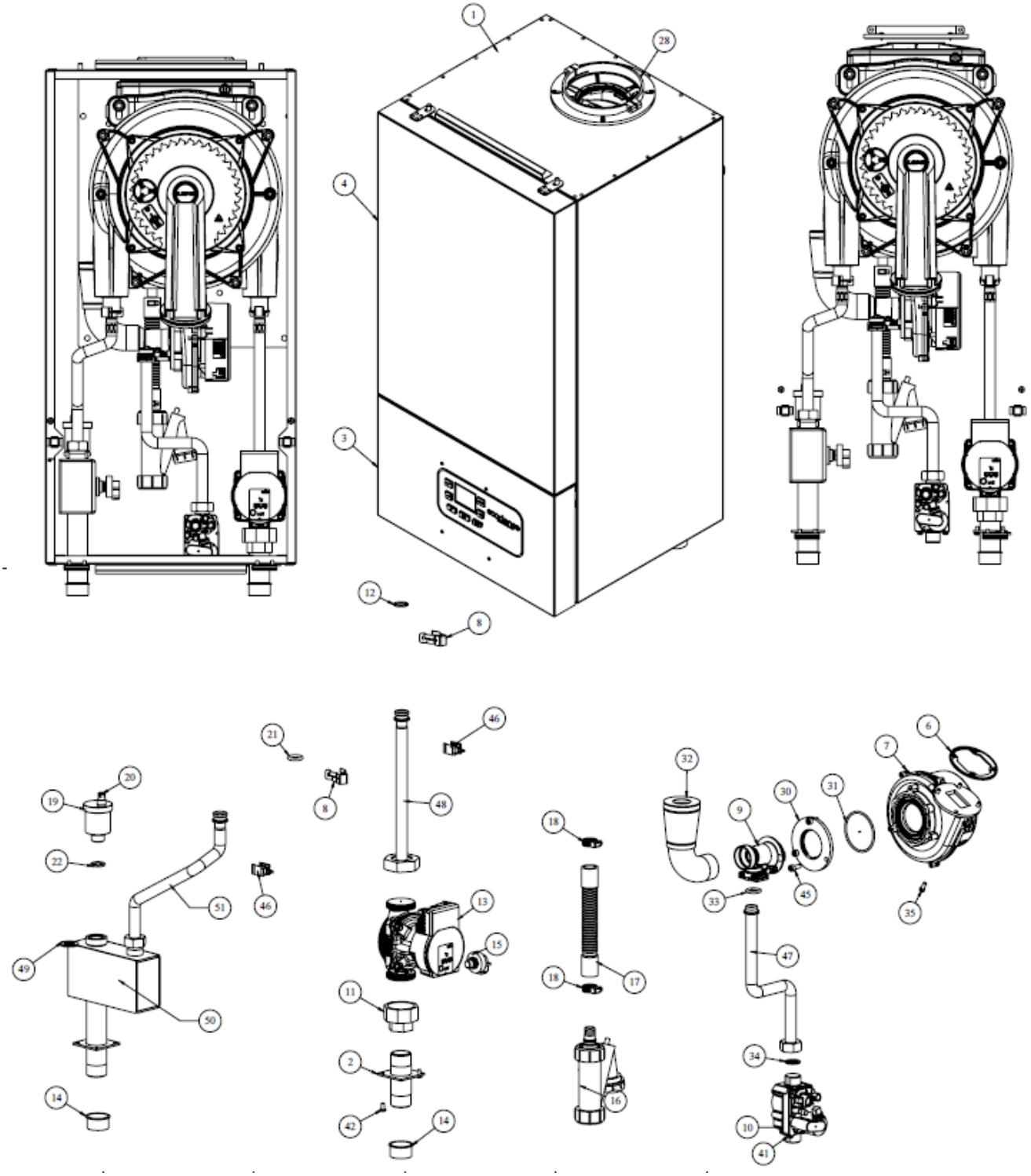
4. ECODENSE Components

➢ WT-S ONE 35-45 OH SERİSİ



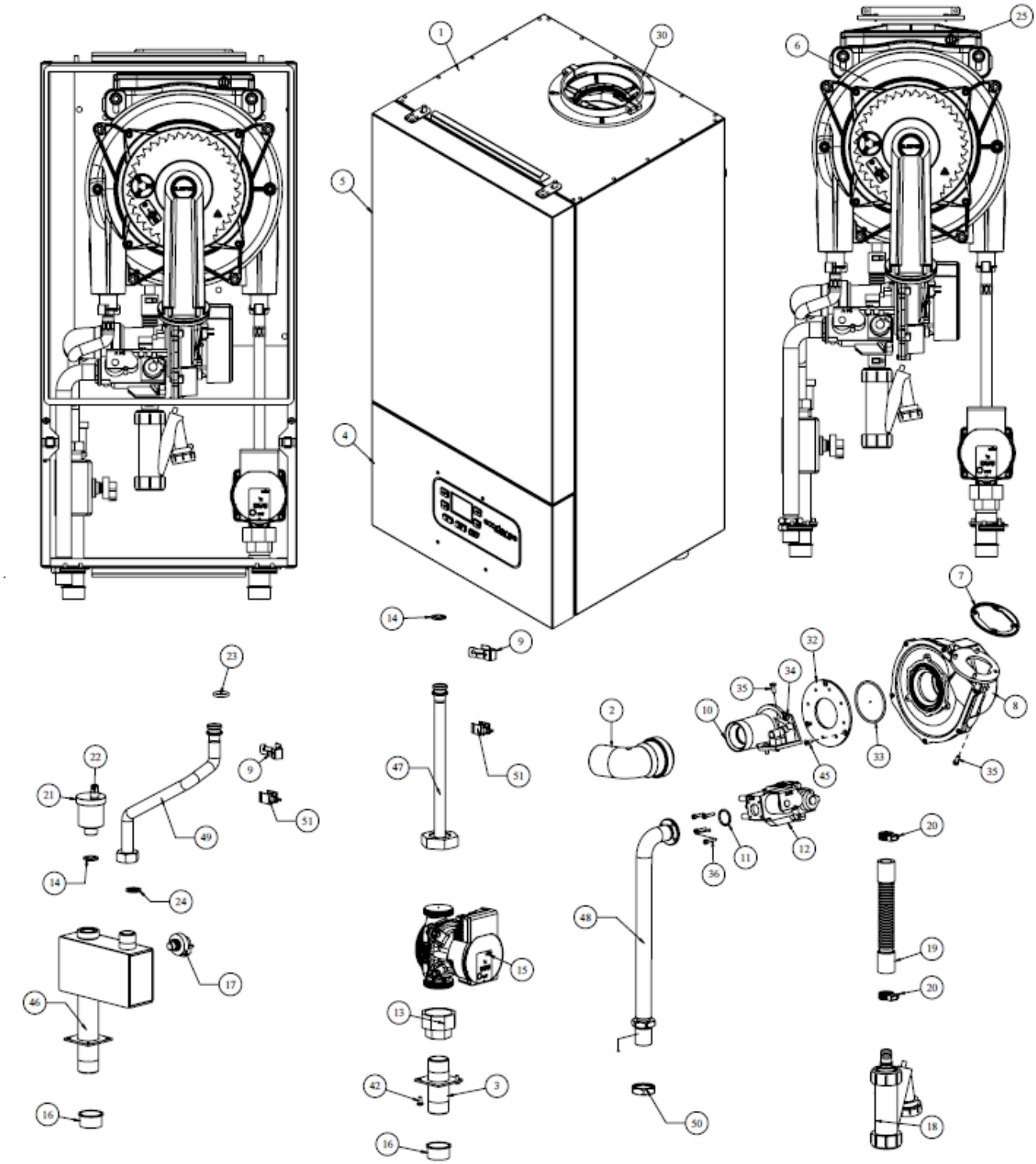
ASEEMBLY NO.	DESCRIPTION
1	CABIN
2	HEAT EXCHANGER
3	WATER OUTLET PIPE
4	COPPER PIPE CONNECTION CLIP
5	WATER INLET PIPE
6	FAN GASKET
7	FAN
8	VENTURI
9	SILENCER
10	GAS ENTRY PIPE
11	OUTLET MANIFOLD
12	KLINGRITE GASKET
13	KLINGRITE GASKET
14	PLUG
15	VALVE
16	KLINGRITE GASKET
17	PUMP
18	PLUG
19	ORING
20	CLIPS
21	PUMP NIPPLE
22	ORING
23	CLIPS
24	ENTRY MANIFOLD
25	PRESSURE TRANSMITTER
26	PLUG
27	HOSE
28	PLUG
29	SENSOR CLIP
30	HOSE CLIP
31	CONDENSATION SIPHON
32	HOSE
33	PIPE TRANSIT GASKET
34	FITTING
35	DOOR LOCK
36	HEAT EXCHANGER BUSH
37	CONTROL PANEL
38	FRONT COVER
39	HINGE
40	FLANGE SET
41	SHEET METAL SCREW
42	GASKET
43	SENSOR
44	BOLT
45	WASHER
46	BOLT
47	BOLT
48	LABEL
49	VENTURI CONNECTION ADAPTER
50	ORING
51	ORING
52	KLINGRITE GASKET
53	WASHER
54	BOLT
55	WASHER
56	BOLT

➢ WT-S ONE 55 OH SERİSİ



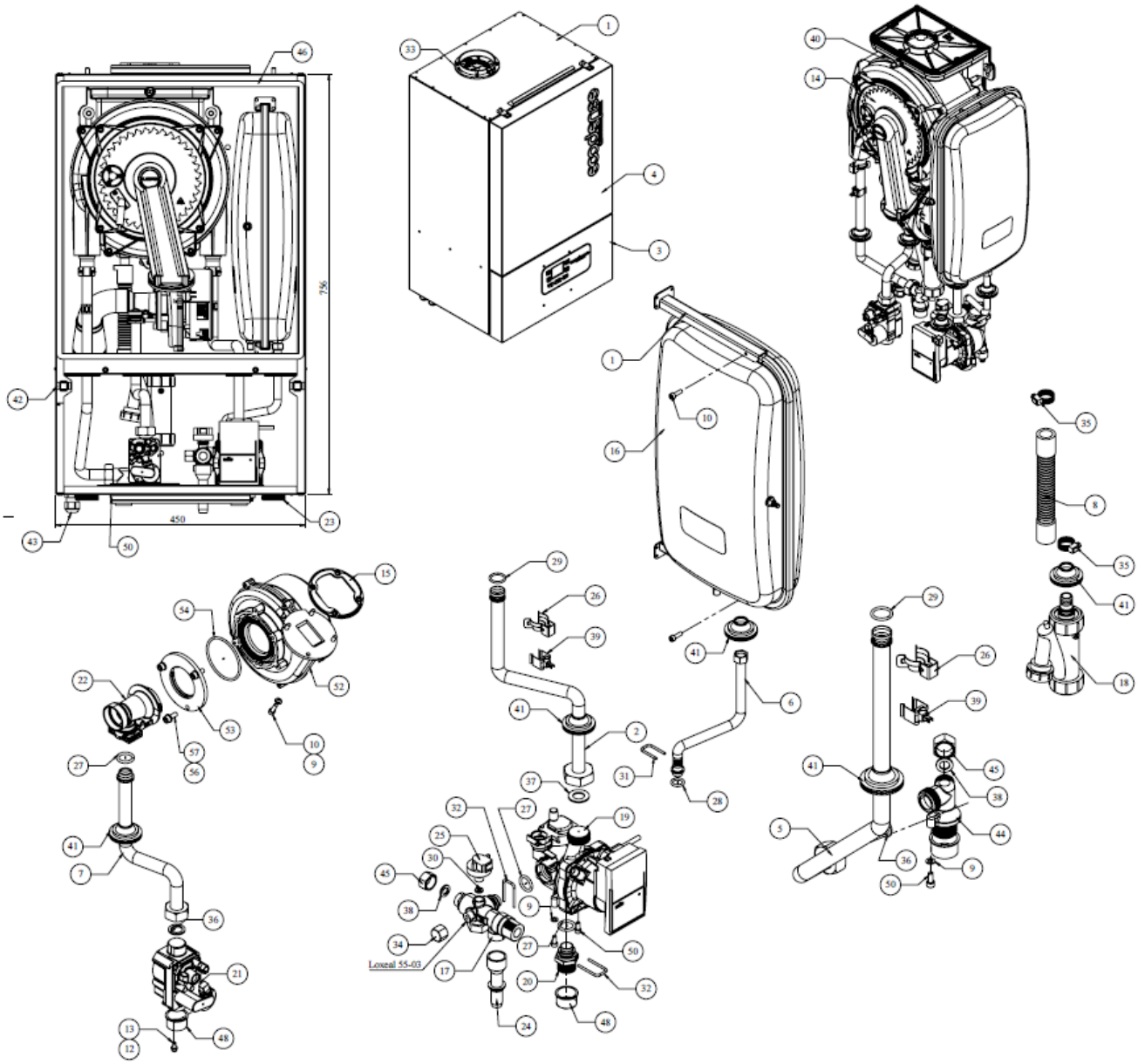
ASEEMBLY NO.	DESCRIPTION
1	CABIN
2	WATER INLET PIPE
3	CONTROL PANEL
4	FRONT COVER
5	HEAT EXCHANGER
6	FAN GASKET
7	FAN
8	COPPER PIPE CONENCTION CLIP
9	VENTURI
10	VALVE
11	FITTING SET
12	ORING
13	PUMP
14	PLUG
15	PRESSURE TRANSMITTER
16	CONDENSATION SIPHON
17	SIPHON HOSE
18	HOSE CLAMP
19	PURGER
20	SECURITY HEAD
21	ORING
22	ORING
23	SENSOR
24	DOOR LOCK
25	HINGE
26	HINGE
27	GASKET
28	FLANGE
29	FLAGE GASKET
30	FAN VENTURI CONENCTION ADAPTER
31	ORING
32	SILENCER
33	ORING
34	KLINGRITE GASKET
35	BOLT
36	BOLT
37	WASHER
38	BOLT
39	WASHER
40	BOLT
41	BOLT
42	BOLT
43	BOLT
44	SHEET METAL SCREW
45	BOLT
46	SENSOR
47	GAS INLET PIPE
48	WATER INLET PIPE
49	KLINGRITE GASKET
50	WATER COLLECTOR
51	SU OUTLET PIPE
52	CABLE GASKET

➢ WT-S ONE 65 OH SERİSİ



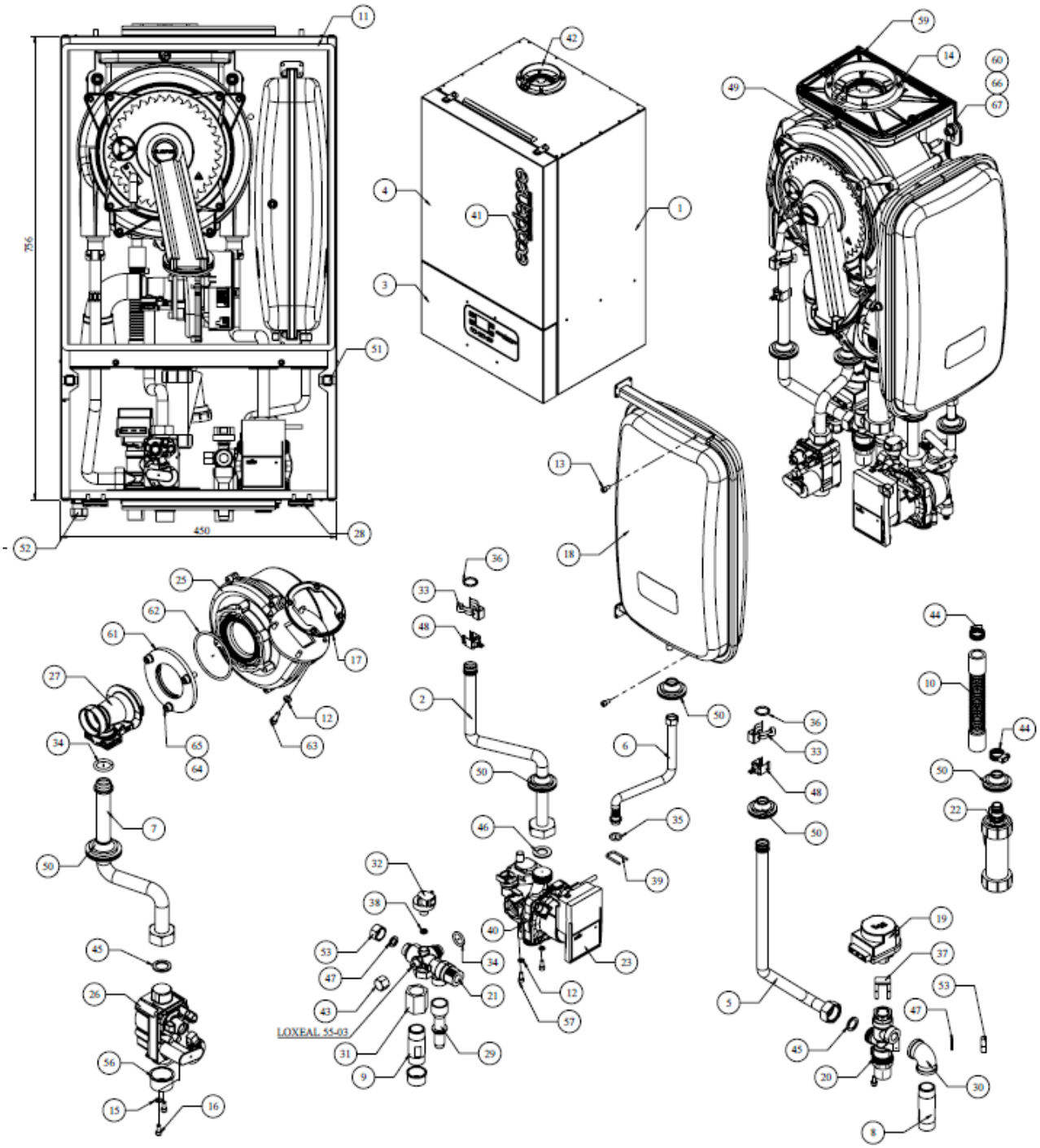
ASEEMBLY NO.	DESCRIPTION
1	CABIN
2	SILENCER
3	WATER INLET PIPE
4	CONTROL PANEL
5	FRONT COVER
6	HEAT EXCHANGER
7	FAN GASKET
8	FAN
9	COPPER PIPE CONNECTION CLIP
10	VENTURI MANIFOLD
11	ORING
12	VALVE
13	FITTING SET
14	ORING
15	PUMP
16	PLUG
17	PRESSURE TRANSMITTER
18	CONDENSATION SIPHON
19	SIPHON HOSE
20	HOSE CLIP
21	PURGER
22	SECURITY HEAD
23	ORING
24	KLINGRITE GASKET
25	SENSOR
26	DOOR LOCK
27	HINGE
28	HINGE
29	GASKET
30	FLANGE SET
31	FLANGE GASKET
32	VENTURI CONNECTION ADAPTER
33	ORING
34	BOLT
35	BOLT
36	BOLT
37	BOLT
38	WASHER
39	BOLT
40	WASHER
41	BOLT
42	BOLT
43	BOLT
44	SHEET METAL SCREW
45	BOLT
46	WATER COLELCTOR
47	WATER INLET PIPE
48	FLEX HOSE
49	WATER OUTLET PIPE
50	NUT
51	SENSOR CLIP
52	CABLE GASKET

➢ WT-S ONE 35-45 OH+EX SERİSİ



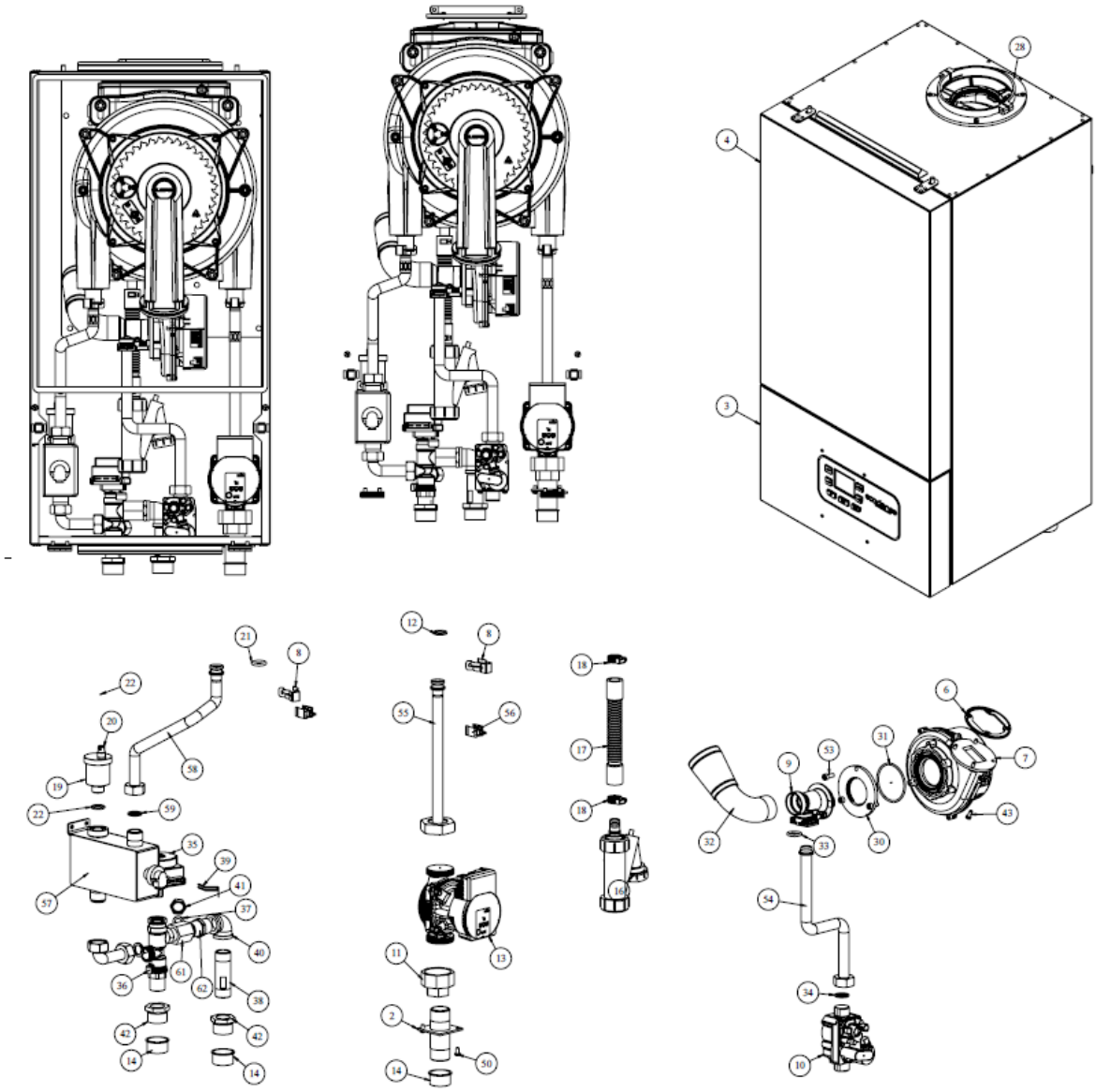
ASEEMBLY NO.	DESCRIPTION
1	CABIN
2	WATER INLET PIPE
3	CONTROL PANEL
4	FRONT COVER
5	WATER OUTLET PIPE
6	FLEX
7	GAS INLET PIPE
8	SIPHON HOSE
9	WASHER
10	BOLT
11	SHEET METAL SCREW
12	WASHER
13	BOLT
14	HEAT EXCHANGER
15	FAN GASKET
16	EXPANSION TANK
17	INLET MANIFOLD
18	CONDENSATION SIPHON
19	PUMP
20	PUMP NIPPLE
21	VALVE
22	VENTURI
23	HINGE
24	HOSE
25	PRESSURE SENSOR
26	COPPER PIPE CONNECTION CLIP
27	ORING
28	ORING
29	ORING
30	KLINGRITE GASKET
31	CLIP EXPANSION TANK
32	CLIPS
33	FLANGE SET
34	BLIND PLUG
35	HOSE CLIPS
36	KLINGRITE GASKET
37	KLINGRITE GASKET
38	KLINGRITE GASKET
39	SENSOR CLIP
40	GAS SENSOR
41	PIPE TRANSIT GASKET
42	DOOR LOCK
43	FITTING
44	OUTLET MANIFOLD
45	BLIND PLUG
46	GASKET
47	SILENCER
48	BLIND PLUG
49	BOLT
50	BOLT
51	IGNITION PIPE
52	FAN
53	VENTURI CONNECTION ADAPTER
54	ORING
55	HEAT EXCHANGER BUSH
56	WASHER
57	BOLT
58	LABEL

➢ WT-S ONE 35-45 BS SERİSİ



ASEEMBLY NO.	DESCRIPTION	ASEEMBLY NO.	DESCRIPTION
1	CABIN	35	ORING
2	WATER INLET PIPE	36	ORING
3	CONTROL PANEL	37	CLIPS
4	FRONT COVER	38	KLINGRITE GASKET
5	WATER OUTLER PIPE	39	CLIPS
6	FLEX	40	CLIPS
7	GAS INLET PIPE	41	LABEL
8	WATER PIPE	42	FLANGE SET
9	WATER INLET PIPE	43	BLIND PLUG
10	SIPHON HOSE	44	HOSE CLIP
11	GASKET	45	KLINGRITE GASKET
12	WASHER	46	KLINGRITE GASKET
13	BOLT	47	KLINGRITE GASKET
14	SHEET METAL SCREW	48	SENSOR CLIP
15	WASHER	49	SENSOR
16	BOLT	50	PIPE TRANSIT GASKET
17	FAN GASKET	51	DOOR LOCK
18	EXPANSION TANK	52	FITTING
19	THREE WAY VALVE MOTOR	53	BLIND PLUG
20	OUTLET MANIFOLD	54	SILENCER
21	INLET MANIFOLD	55	HINGE
22	CONDENSATION SIPHON	56	BLIND PLUG
23	PUMP	57	BOLT
24	PUMP NIPPLE	58	BOLT
25	FAN	59	HEAT EXCHANGER
26	VALVE	60	HEAT EXCHANGER BUSH
27	VENTURI	61	VENTURI CONNECTION ADAPTER
28	HINGE	62	ORING
29	HOSE	63	BOLT
30	ELBOW	64	WASHER
31	MUFF	65	BOLT
32	PRESSURE TRANSMITTER	66	WASHER
33	COPPER PIPE CONNECTION CLIPS	67	BOLT
34	ORING		

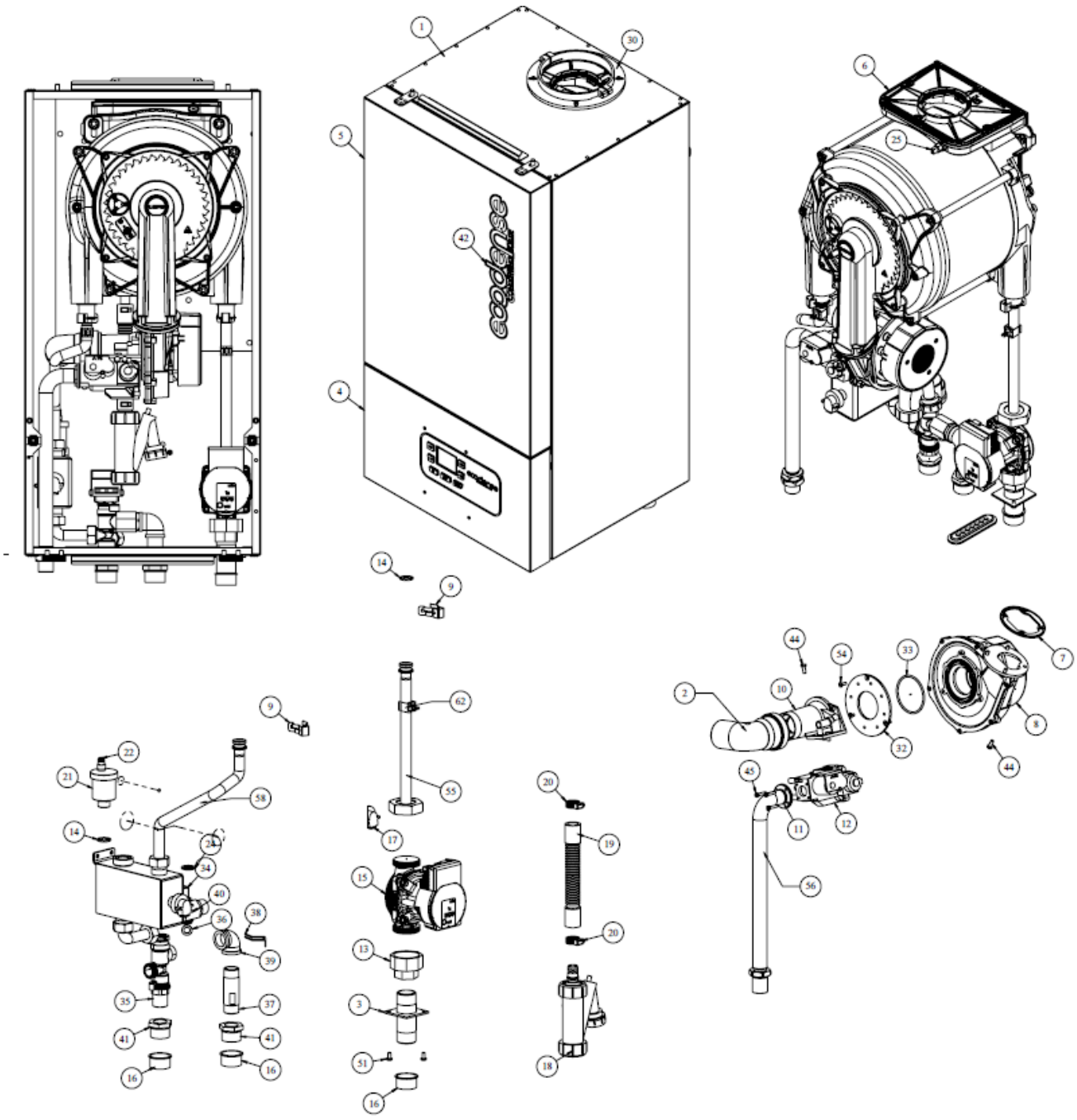
➢ WT-S ONE 55 BS SERİSİ



ASEEMBLY NO.	DESCRIPTION
1	CABIN
2	WATER INLET PIPE
3	CONTROL PANEL
4	FRONT COVER
5	HEAT EXCHANGER
6	FAN GASKET
7	FAN
8	COPPER PIPE CONNECTION CLIP
9	VENTURI
10	VALVE
11	FITTING SET
12	ORING
13	PUMP
14	PLUG
15	PRESSURE TRANSMITTER
16	CONDESATION SIPHON
17	SIPHON HOSE
18	HOSE CLAMP
19	PURGER
20	SECURITY HEAD
21	ORING
22	ORING
23	SENSOR
24	DOOR LOCK
25	HINGE
26	HINGE
27	GASKET
28	FLANGE SET
29	FLANGE SET GASKET
30	FAN VENTURI CONNECTION ADAPTER
31	ORING
32	SILENCER

ASEEMBLY NO.	DESCRIPTION
33	ORING
34	KLINGRITE GASKET FITTING
35	VALVE MOTOR
36	OUTLET MANIFOLD
37	KLINGRITE GASKET
38	WATER PIPE
39	VALVE MOTOR
40	ELBOW
41	PLUG
42	REDUCTION
43	BOLT
44	BOLT
45	WASHER
46	BOLT
47	WASHER
48	BOLT
49	BOLT
50	BOLT
51	BOLT
52	SHEET METAL SCREW
53	BOLT
54	GAS INLET PIPE
55	WATER INLET PIPE
56	SENSOR
57	WATER COLLECTOR
58	WATER OUTLET PIPE
59	KLINGRITE GASKET
60	WATER OUTLET PIPE
61	MUFF
62	NIPPLE
63	CABLE GASKET

➢ WT-S ONE 65 BS SERİSİ

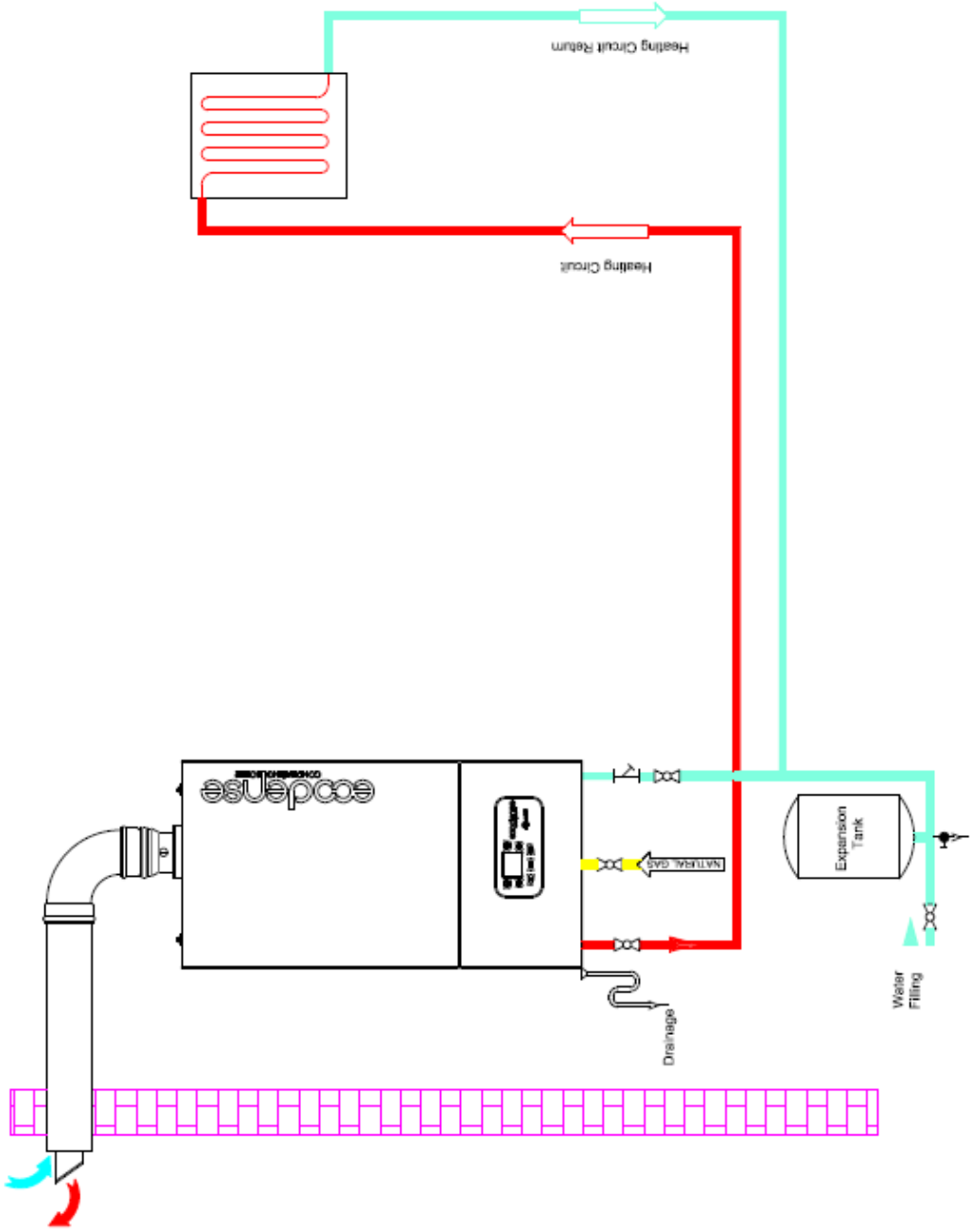


ASEEMBLY NO.	DESCRIPTION
1	CABIN
2	SILENCER
3	WATER INLET PIPE
4	CONTROL PANEL
5	FRONT COVER
6	HEAT EXCHANGER
7	FAN GASKET
8	FAN
9	COPPER PIPE CONNECTION CLIP
10	ORING
11	VALVE
12	FITTING SET
13	ORING
14	PUMP
15	PLUG
16	PRESSURE TRANSMITTER
17	CONDENSATION SIPHON
18	SIPHON HOSE
19	HOSE CLAMP
20	PURGER
21	SECURITY HEAD
22	ORING
23	KLINGRITE GASKET
24	SENSOR
25	DOOR LOCK
26	HINGE
27	HINGE
28	GASKET
29	FLANGE SET
30	FLANGE SET GASKET
31	FAN VENTURI CONNECTION ADAPTER
32	ORING

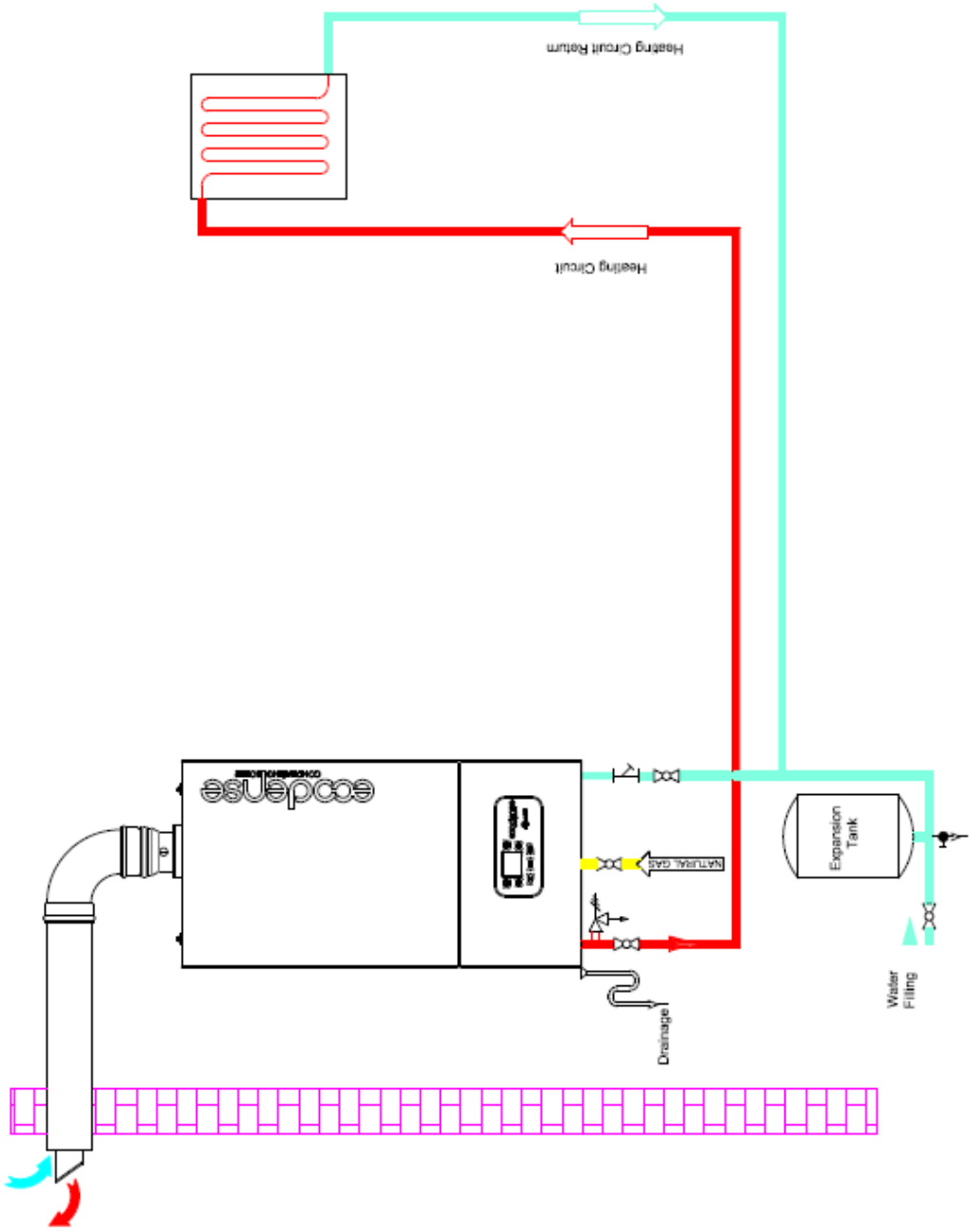
ASEEMBLY NO.	DESCRIPTION
33	VALVE MOTOR
34	OUTLET MANIFOLD
35	KLINGRITE GASKET
36	WATER PIPE
37	VALVE MOTOR
38	ELBOW
39	PLUG
40	REDUCTION
41	LABEL
42	BOLT
43	BOLT
44	BOLT
45	BOLT
46	WASHER
47	BOLT
48	WASHER
49	BOLT
50	BOLT
51	BOLT
52	SHEET METAL SCREW
53	BOLT
54	WATER INLET PIPE
55	FLEX HOSE
56	COLLECTOR
57	WATER OUTLET PIPE
58	WATER OUTLET PIPE
59	MUFF
60	NİPPLE
61	SENSOR CLIP
62	NUT
63	CABLE GASKET
64	VENTURI MANIFOLD

5. CIRCUIT SCHEMES

➢ WT-S ONE 35/45 OH SERIES



➢ WT-S ONE 55/65 OH SERIES



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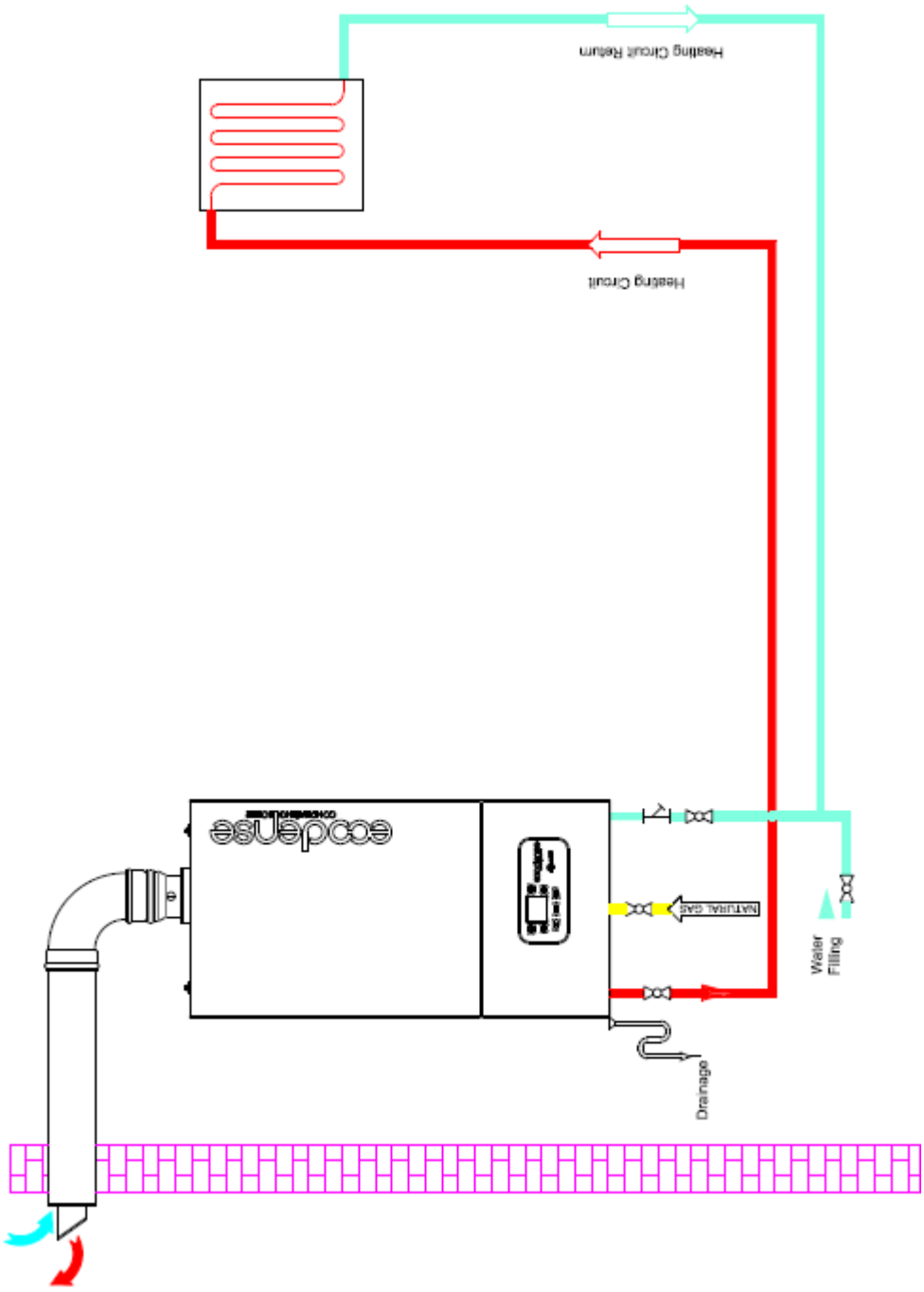
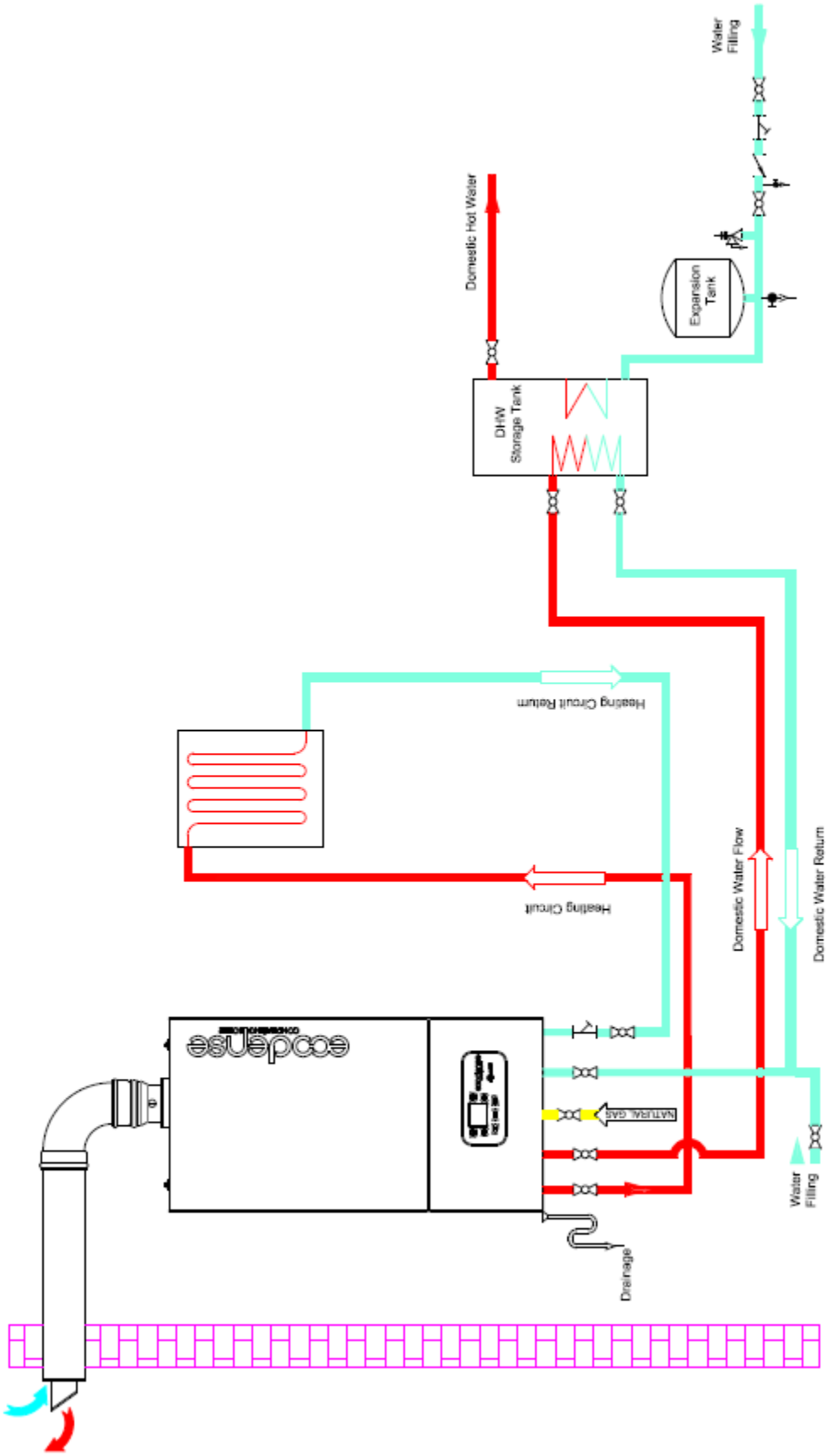
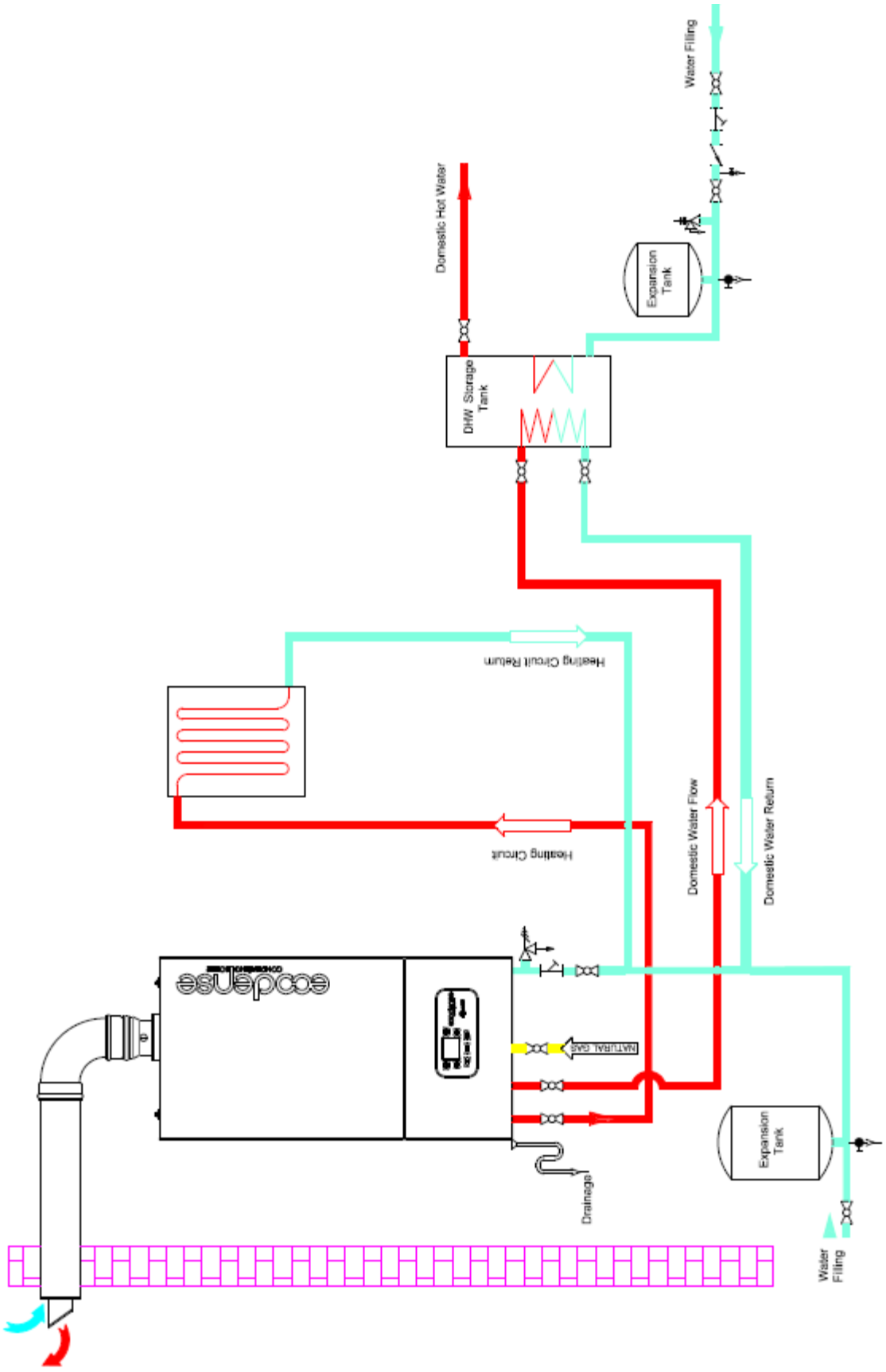


➢ WT-S ONE 35/45 BS SERIES



➢ WT-S ONE 55/65 BS SERIES



6. CLOSED CIRCUIT COMPONENTS

6.1. Expansion Tank

Expansion tank fore pressures must be adjusted according to system. Expansion tank should be placed parallel to circuit return line.

6.2. Manometer

A manometer with capacity of at least 0 to 6 bar must be connected to system. Manometer should be placed to easily visible spot from filling point, preferably same point as expansion tank.

6.3. Strainer

Any dirt or residue in circuit water causes damage got boiler and circuit components and decreases efficiency by reducing heat transfer. In order to prevent this problem a strainer must be connected to circuit.

6.4. Air Separator

The air in the water dissolves due to increasing temperature and flow in the circuit. Dissolved air causes cavitation, sound and efficiency loss. By using an air separator air is removed from the system.

The hydraulic system design must comply with the circuit diagrams specified in the user manual to ensure that the system operates smoothly and that installation errors do not result in loss of efficiency. The hydraulic system must have a balance vessel, sediment trap, air separator and expansion tank in accordance with the system capacity and specifications.

In order to keep the pH value in balance, passing the water circulating in the system through a softening step (Reverse osmosis systems) will be useful in the continuity of the water quality.

7. WATER QUALITY

1. Before connection of condensing boilers any dirt and residue in circuit must be cleaned.

2. Water Hardness and pH measurements should be made by the authorized or central service in the field where the boiler will be commissioned before the commissioning, and it should be decided whether the water can be used in the boiler water installation.

3. Refined water must be used while adding water to heating circuit due to any loss in closed circuit.

4. Permitted water hardness for the water used in water circuit must comply with French or German (VDI 2035) hardness degree standards. The lime dissolved in water, settles on hot surfaces and forms an insulation layer when water temperature rises. This prevents heat transfer and high temperature might damage the heat exchanger. If boiler water cycles through water circuit, all circuit water must meet above requirements. If a plate heat exchanger separates boiler water and heating circuit water, only the water between boiler and heat exchanger must meet these requirements.

In order to prevent sedimentation, properties of the water to be used or to be reinforced in the water line should not exceed the following table values according to below mentioned capacities.

Boiler Type	**Capacity**	**(Total Hardness)**		
		ppm	**(°F) French**	**VDI German**
Single Boiler	0-50 kW	250	< 25	< 14
Single Boiler	50-200 kW	110	< 11	< 6,16

*Volume to capacity ratio of water in circuit must be higher than 20 I/kW. Total volume of first filled water and additional water must be less than volume of system.

5. the customer or contract company should analyze the water to be used in the water line by an accredited organization prior to commissioning and a water quality report should provided containing Minimum Hardness, pH and conductivity values, total dissolved solid values.

6. **pH value of unrefined water must be 7<pH<9. This pH value can be achieved after filling the circuit with main circuit water with pH value of 7 and air separation. pH value of refined water must be between 7-8,5 pH.**

7. In new building installations, periodic preventive maintenance must be carried out by using organic solutions with a chemical pH effect [neutral].

8. Prior to commissioning of condensing boilers in old building water installations, a suitable type of organic solution with a pH value (acidic) between 4 and 6 should be washed.

9. The boiler water pipeline and heat exchanger should be treated with a suitable type of organic solution over a period of 6 to 12 months to prevent calcification and deposits that may occur over time in the installation.

10. If the water quality is outside the value ranges given above, it is mandatory to use a water softening filter or electrolytic limescale reducer in the system for water installations.

8. TECHNICAL DATA

8.1. Capacity Table

ECODENSE *WT - S ONE OH SERIES*
WALL TYPE CONDENSING BOILER

TECHNICAL SPECIFICATIONS	Unit	WT-S ONE 35 OH	WT-S ONE 45 OH	WT-S ONE 55 OH	WT-S ONE 65 OH
Thermal Capacity					
Maximum Heating Capacity	kW	35	45	55	65
Minimum Heating Capacity	kW	7	10	12	13
Maximum Heat Output (80°C / 60°C)	kW	34,3	43,4	54,1	63,8
Minimum Heat Output (80°C / 60°C)	kW	6,9	8,1	9,5	11
Maximum Heat Output (50°C / 30°C)	kW	36,9	45,9	56,2	68,1
Minimum Heat Output (50°C / 30°C)	kW	7,3	8,1	10,3	11,7
Thermal Efficiency					
Efficiency @ Pmax. (80°C / 60°C)	%	97,2	97,3	97,5	97,6
Efficiency @ Pmin. (80°C / 60°C)	%	98,6	98,7	99,1	99,2
Efficiency @ Pmax. (50°C / 30°C)	%	105,2	105,3	104,7	105,2
Efficiency @ Pmin. (50°C / 30°C)	%	107,2	107,1	107,2	107,3
Efficiency @ %30 (30°C)	%	108,6	108,4	108,7	108,3
Central Heating Circuit					
Maximum Operating Temperature	°C	85	85	85	85
Maximum Operating Pressure	bar	3	3	3	3
Minimum Operating Pressure	bar	0,8	0,8	0,8	0,8
Gas Specifications					
Gas Type	-	G20-G31	G20-G31	G20-G31	G20-G31
Gas Inlet Pressure (G20)	mbar	20	20	20	20
Gas Inlet Pressure (G31)	mbar	37	37	37	37
Maximum gas consumption	Nm^3/h	3,65	4,69	5,73	6,78
Minimum gas consumption	Nm^3/h	0,73	1,04	1,25	1,36
Combustion Specifications					
Maximum Flue Gas Temperature (50°C / 30°C)	°C	40	42	43	45
Maximum Flue Gas Temperature (80°C / 60°C)	°C	65	65	65	65
Electrical Specifications					
Electrical Supply	V / Hz	230/50	230/50	230/50	230/50
Protection Class	IP	X4D	X4D	X4D	X4D
Energy Consumption	W	110	110	125	125
Fuse Current	A	2	2	2	2
Circuit Specifications					
Gas Connection Diameter	inch	3/4"	3/4"	3/4"	3/4"
Central Heating Circuit Inlet/Outlet Diameter	inch	3/4"	3/4"	1"	1"
General Specifications					
Net Weight	kg	44	47	54	61
Flue Diameter (Ø)	mm	60/100	60/100	80/125	80/125
NOx Emission Class (EN 15502-1+A1)	-	5	5	5	5
G20 Natural Gas , G31 LPG					

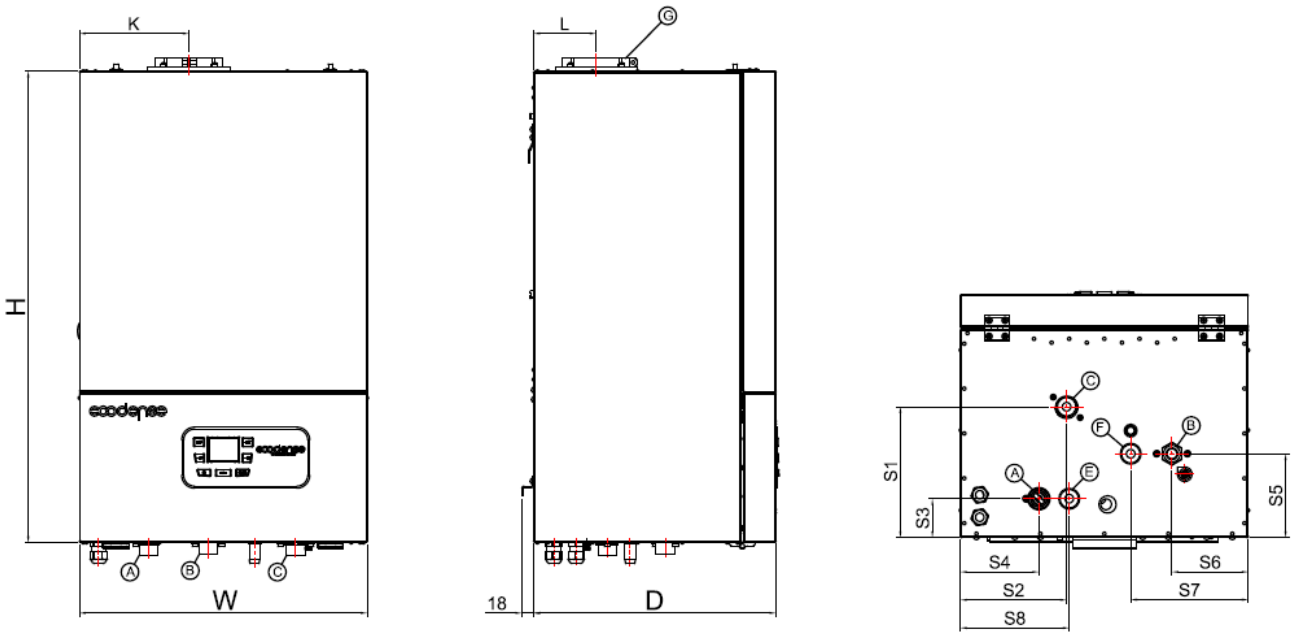
ECODENSE *WT - S ONE OH - EX SERIES*
WALL TYPE CONDENSING BOILER

TECHNICAL SPECIFICATIONS	Unit	WT-S ONE 35 OH-EX	WT-S ONE 45 OH-EX
Thermal Capacity			
Maximum Heating Capacity	kW	35	45
Minimum Heating Capacity	kW	6,5	11
Maximum Heat Output (80°C / 60°C)	kW	34,2	45,5
Minimum Heat Output (80°C / 60°C)	kW	7,1	8,2
Maximum Heat Output (50°C / 30°C)	kW	36,7	43,2
Minimum Heat Output (50°C / 30°C)	kW	7,2	7,9
Thermal Efficiency			
Efficiency @ Pmax. (80°C / 60°C)	%	97,1	97,6
Efficiency @ Pmin. (80°C / 60°C)	%	98,7	98,7
Efficiency @ Pmax. (50°C / 30°C)	%	105,2	105,3
Efficiency @ Pmin. (50°C / 30°C)	%	107,2	107,1
Efficiency @ %30 (30°C)	%	108,6	108,4
Central Heating Circuit			
Maximum Operating Temperature	°C	85	85
Maximum Operating Pressure	bar	3	3
Minimum Operating Pressure	bar	0,8	0,8
Gas Specifications			
Gas Type	-	G20-G31	G20-G31
Gas Inlet Pressure (G20)	mbar	20	20
Gas Inlet Pressure (G31)	mbar	37	37
Maximum gas consumption	Nm^3/h	3,65	4,69
Minimum gas consumption	Nm^3/h	0,68	1,15
Combustion Specifications			
Maximum Flue Gas Temperature (50°C / 30°C)	°C	40	42
Maximum Flue Gas Temperature (80°C / 60°C)	°C	65	65
Electrical Specifications			
Electrical Supply	V / Hz	230/50	230/50
Protection Class	IP	X4D	X4D
Energy Consumption	W	110	110
Fuse Current	A	2	2
Circuit Specifications			
Expansion Tank Volume	L	12	12
Gas Connection Diameter	inch	3/4"	3/4"
Central Heating Circuit Inlet/Outlet Diameter	inch	3/4"	3/4"
General Specifications			
Net Weight	kg	50	65
Flue Diameter (Ø)	mm	60/100	60/100
NOx Emission Class (EN 15502-1+A1)	-	5	5
G20 Natural Gas , G31 LPG			

ECODENSE *WT - S ONE BS SERIES*
WALL TYPE CONDENSING BOILER

TECHNICAL SPECIFICATIONS	Unit	WT-S ONE 35 BS	WT-S ONE 45 BS	WT-S ONE 55 BS	WT -S ONE 65 BS
Thermal Capacity					
Maximum Heating Capacity	kW	35	45	55	65
Minimum Heating Capacity	kW	7	10,5	12	14
Maximum Heat Output (80°C / 60°C)	kW	34,1	45,7	54,2	63,6
Minimum Heat Output (80°C / 60°C)	kW	6,7	7,7	9,6	10,8
Maximum Heat Output (50°C / 30°C)	kW	36,7	43,5	56,2	67,9
Minimum Heat Output (50°C / 30°C)	kW	7,2	7,4	10,2	11,4
Thermal Efficiency					
Efficiency @ Pmax. (80°C / 60°C)	%	97,2	97,4	97,3	97,4
Efficiency @ Pmin. (80°C / 60°C)	%	98,1	98,2	98,3	98,4
Efficiency @ Pmax. (50°C / 30°C)	%	105,2	104,7	105,8	105,7
Efficiency @ Pmin. (50°C / 30°C)	%	107,4	107,2	107,1	107,2
Efficiency @ %30 (30°C)	%	108,5	108,6	108,9	108,7
Domestic Hot Water Circuit					
Temperature adjustment range with external storage tank usage	°C	10-65	10-65	10-65	10-65
Central Heating Circuit					
Maximum Operating Temperature	°C	85	85	85	85
Maximum Operating Pressure	bar	3	3	3	3
Minimum Operating Pressure	bar	0,8	0,8	0,8	0,8
Gas Specifications					
Gas Type	-	G20-G31	G20-G31	G20-G31	G20-G31
Gas Inlet Pressure (G20)	mbar	20	20	20	20
Gas Inlet Pressure (G31)	mbar	37	37	37	37
Maximum gas consumption	Nm³/h	3,65	4,69	5,73	6,78
Minimum gas consumption	Nm³/h	0,73	1,09	1,25	1,46
Combustion Specifications					
Maximum Flue Gas Temperature (50°C / 30°C)	°C	40	42	43	45
Maximum Flue Gas Temperature (80°C / 60°C)	°C	65	65	65	65
Electrical Specifications					
Electrical Supply	V / Hz	230/50	230/50	230/50	230/50
Protection Class	IP	X4D	X4D	X4D	X4D
Energy Consumption	W	110	110	125	125
Fuse Current	A	2	2	2	2
Circuit Specifications					
Gas Connection Diameter	inch	3/4"	3/4"	3/4"	3/4"
Central Heating Circuit Inlet/Outlet Diameter	inch	3/4"	3/4"	1"	1"
General Specifications					
Net Weight	kg	45	48	55	63
Flue Diameter (Ø)	mm	60/100	60/100	80/125	80/125
NOx Emission Class (EN 15502-1+A1)	-	5	5	5	5
G20 Natural Gas , G31 LPG					

8.2. Condensing Boiler Dimensions



MODEL	W (mm)	H (mm)	D (mm)	A (mm)	B (mm)	C (mm)	E (mm)	F (mm)	G (mm)	K (mm)	L (mm)	S1 (mm)	S2 (mm)	S3 (mm)	S4 (mm)	S5 (mm)	S6 (mm)	S7 (mm)	S8 (mm)
WT - S ONE 35 OH	450	755	378	G 3/4"	G 3/4"	G 3/4"	-	-	Ø60xØ100	170	107	204	166	61.5	122.5	126.5	108	-	-
WT - S ONE 35 OH - EX	450	755	378	G 3/4"	G 3/4"	G 3/4"	-	-	Ø60xØ100	170	107	205	162	122.5	61.5	132	120	-	-
WT - S ONE 35 BS	450	755	378	G 3/4"	G 3/4"	G 3/4"	G 3/4"	G 3/4"	Ø60xØ100	170	107	204	166	60.5	122.5	131	120	184	170
WT - S ONE 45 OH	450	755	378	G 3/4"	G 3/4"	G 3/4"	-	-	Ø60xØ100	170	107	204	166	61.5	122.5	126.5	108	-	-
WT - S ONE 45 OH - EX	450	755	378	G 3/4"	G 3/4"	G 3/4"	-	-	Ø60xØ100	170	107	205	162	61.5	122.5	132	120	-	-
WT - S ONE 45 BS	450	755	378	G 3/4"	G 3/4"	G 3/4"	G 3/4"	G 3/4"	Ø60xØ100	170	107	204	166	60.5	122.5	131	120	184	170
WT - S ONE 55 OH	415	820	400	G 1"	G 1"	G 3/4"	-	-	Ø80xØ125	232	100	228.5	260	45	36.5	48.5	60.8	-	-
WT - S ONE 55 BS	415	820	400	G 1"	G 1"	G 3/4"	G 1"	-	Ø80xØ125	232	100	228.5	260	45	101.5	48.5	60.8		146
WT - S ONE 65 OH	415	820	400	G 1"	G 1"	G 1/2"	-	-	Ø80xØ125	232	100	282	33	45	36.5	48.5	60.8	-	-
WT - S ONE 65 BS	415	820	400	G 1"	G 1"	G 1/2"	G 1"	-	Ø80xØ125	232	100	282	33	45	101	48.5	60.8	-	146

8.3. Noise Level

When the condensing boiler is in operation, the maximum noise level released is <70 dBA. The noise level value corresponds to the value measured with semi-anekoik (semi-unreflecting acoustic) room testing according to the product standards at the time of expansion of the smoke release system, when the condensing boiler operates at the maximum heating power.

9. CONDENSING BOİLER HANDLING INFORMATION

- Prevent strong impacts on top of the product and vibration while handling the product.
- Do not leave the product in wet environment.

Device must be shipped in original packaging!

10. INSTALLATION

10.1. General Controls

- The heating capacity of the device should be determined based on the heat requirement calculate
- All parts necessary for the system must be available.
- Make sure that all protection and safety devices are available.
- In order to prevent accumulation of dirt in the system, prevention of boiler operation and damage given to the boiler by clogging, a filter must be mounted onto the system's return pipe.
- The device has a frost protection system to prevent the device from freezing when the water temperature of the installation falls below +4 ˚C.
- Ensure that the gas connections are made with pipes confirming to the standards, and that there is no leakage on these connections.
- Ensure that the electric connections are proper.

Clean the inside of fuel line thoroughly before installing the burner to the fuel line. Any damage that may occur due to solid objects and metal particles from the fuel line shall not be covered by our company.

Electrical Connection

Perform electrical connections according to the diagram provided. Follow general security rules during installation of electric wiring and making connections. Connect the earthing terminal in electric panel to the earthing installation.

10.2. Assembly of Condensing Fluid Drain

1. Ensure that siphon is fully filled with water before activation of boiler.

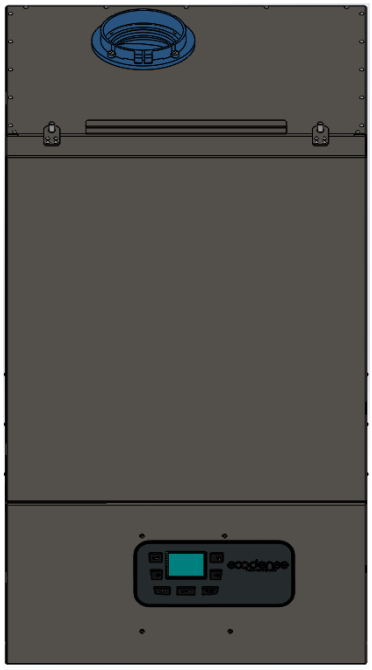
2. Drain direction must allow flow of condensing fluid. Drain pipe must be planned to prevent any clogging due to external effect like frost, etc. Drain parts must be plastic.

3. Boiler condensing outlet must be at least 13 mm.

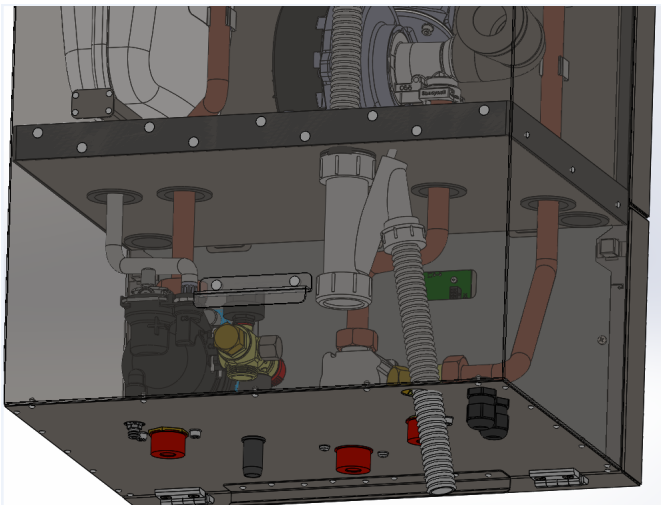
Condensing drain must not be changed or clogged after assembly. Clogging of condensing drain causes the boiler to automatically shut down or causes the siphon to overflow. It will be helpful to pour some hot water to the open parts of drain if there is a possibility of frost. Drain must be open at all times to ensure proper functioning of the boiler.

In order to mount the boiler to wall, lift the boiler above the level of hangers and ensure that boiler is solidly mounted on the hangers.

Do not forget to check the gasket and tighten the flange during chimney installation.



Condensing drain must not be changed or clogged after assembly. Clogging of condensing drain causes the boiler to automatically shut down or causes the siphon to overflow. It will be helpful to pour some hot water to the open parts of drain if there is a possibility of frost. Drain must be open at all times to ensure proper functioning of the boiler.



Condensing Water Syphon should be cleaned from dust and dirts in every 3 months and also beginning of every winter.

11. ECODENSE CONTROL INSTRUCTIONS BEFORE START-UP

1. Ensure that boiler are mounted on fixed, firm and robust wall. Use metal hangers on improper walls.

2. Closed circuit maximum operation pressure is 3 bars. It is suggested that accumulator tank must be used on CH circuit for safety.

3. Safety valve fixed to 3 bars must be used.

4. Ensure that stack connections, are at right radius and connected as leak proof.

5. PWM pump has its automatic air vent. It is suggested that air vent must be used on CH circuit for safety.

6. Hydraulic circuit pressure is displayed on control card display. Check the system water pressure on the display.

7. Control if the condensing fluid siphon is made of plastic, isolated against frost, at correct radius and connected to condensing fluid drain with an angle. It should not be connected to rain drain.

8. Ensure that gas pressure complies with boiler operation instructions. In situations where gas pressure is higher than required pressure, a regulator must be used.

9. Ensure that sensors on boiler feed and circuit (outgoing-return temperature, ambient temperature, boiler temperature sensors, room thermostats and the other control kit) are wired correctly.

10. In case of an imbalance in electrical installation's voltage value, It is recommended to install a voltage regulator of 1 kw, up to 550 kw capacity and 2 kw; for capacities over 550 kw in order not to damage the electronic card on the device.

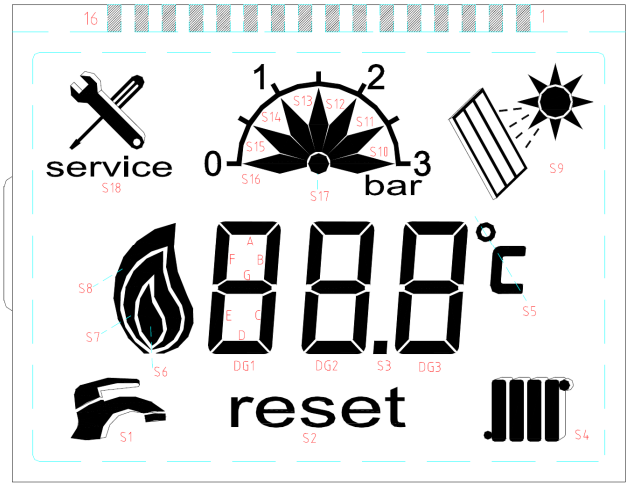
11. In the regions with cold and minus winter conditions, only Propylene Glycol containing Anti-freeze liquid is allowed to use as a frost protection liquid for boilers, Content suitability
It is advised to interview with the manufacturer about Suitable liquid content.

On first start-up if there is deficiency in the system detected by ECODENSE authorized service technicians, technicians are not allowed to activate the system.

11.1. Control Panel Description

K1 CH setpoint adjustment (+)
K2 CH setpoint adjustment (-)
K3 OFF / Info mode selection
K4 RESET mode
K5 DHW / CH+DHW modes enabling
K6 DHW setpoint adjustment (-)
K7 DHW setpoint adjustment (+)

11.2. Display Description



S1 DHW mode
S2 Reset request
S4 CH mode
S5 Centigrade degree
S6-S7-S8 Burner power indication
S9 Solar mode
S10 .. S17 Water pressure level indication
S18 Service request

11.3. Operating Principle

The boiler can be set in 2 operations modes:-‘Summer’ (**DHW** only), ’Winter’ (**CH & DHW**) ,

Winter Mode (CH & DHW)

1. Press the **ON/OFF** button (**K5**). Radiator and tap symbol will be displayed on the screen.

2. CH water set temperature will be displayed on the screen when DHW is not needed.CH heating set temperature is increases by pressing (**K1**) button, and decreases by pressing (**K2**) button.CH set temperature is displayed on the screen when pressed to these buttons. Flame symbol (🔥) is displayed on the screen when condensing boiler is started-up. The radiator symbol on the screen will be flashing when condensing boiler works at CH mode.

3. DHW set temperature is increased by pressing to (**K7**) button, and decreased by pressing (**K6**) button. DHW set temperature is displayed on the screen when pressed to these buttons. When the DHW is needed, condensing boiler is worked on DHW mode and tap symbol will be flashing when condensing boiler works at DHW mode. Because of the DHW priority, even if the appliance is operating at CH, condensing boiler will switch to when DHW is needed.

Summer Mode (DHW only)

1. Press the **ON/OFF** button (**K5**) until the tap symbol will be displayed on the screen.

2. DHW heating set temperature is increases by pressing (**K**7) button, and decreases by pressing (**K6**) button. DHW set temperature is displayed on the screen when pressed to these buttons. condensing boiler will started at DHW mode when DHW is needed.

11.4. Boiler Frost Protection Mode

When water outlet temperature decreased below 5°C, frost protection function of condensing boiler operating system provides that burner starts up and increases water outlet temperature up to 30°C.

Frost protection mode works under the conditions below:

1. Condensing boiler electrical supply should be turned on.

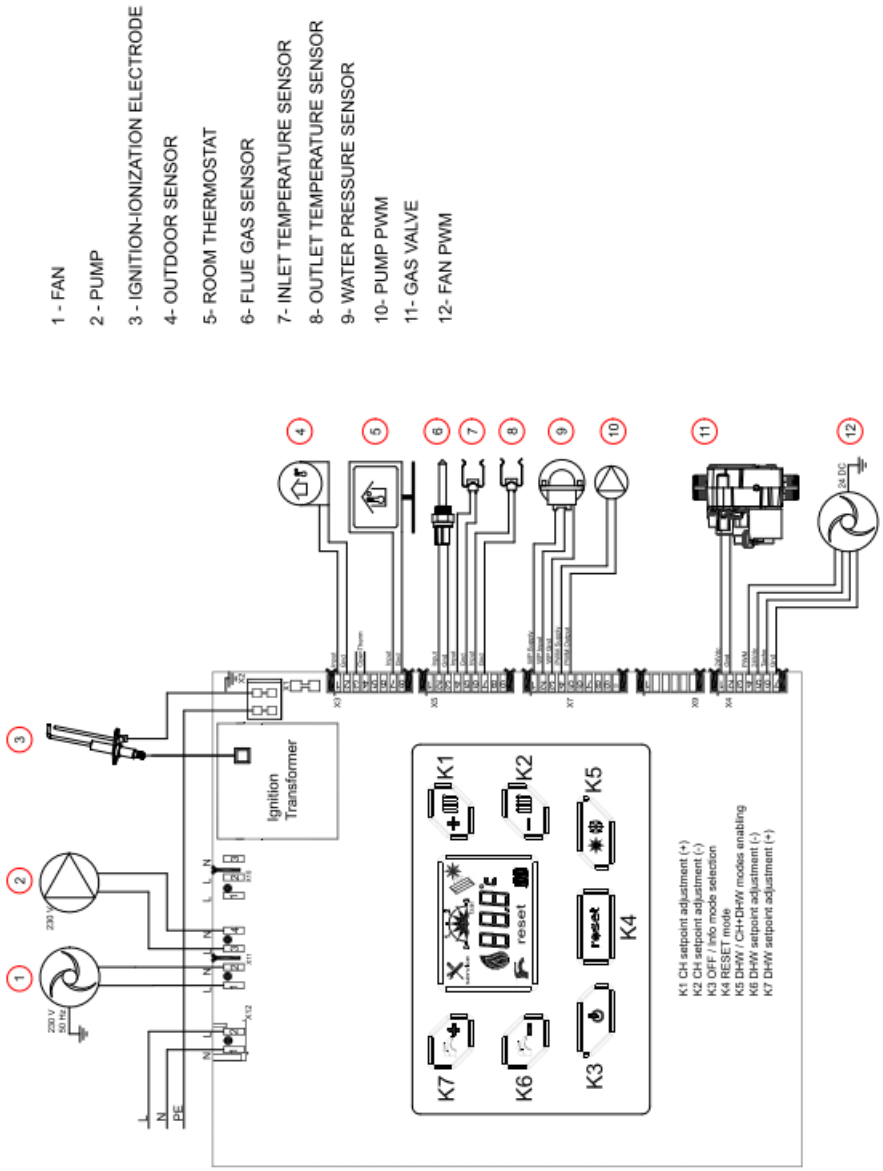
2. Main gas valve on gas circuit should be opened.

3. Hydraulic water pressure should be adjusted properly.

Condensing boiler should not be bloked.

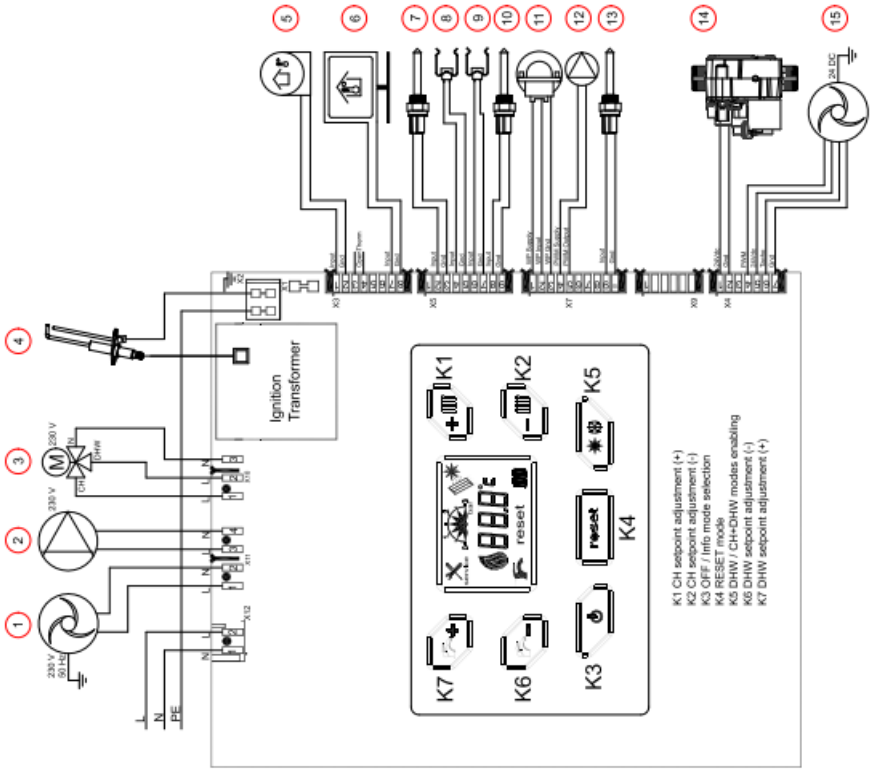
12. ELECTRICAL DIAGRAM AND RELATED CONNECTIONS

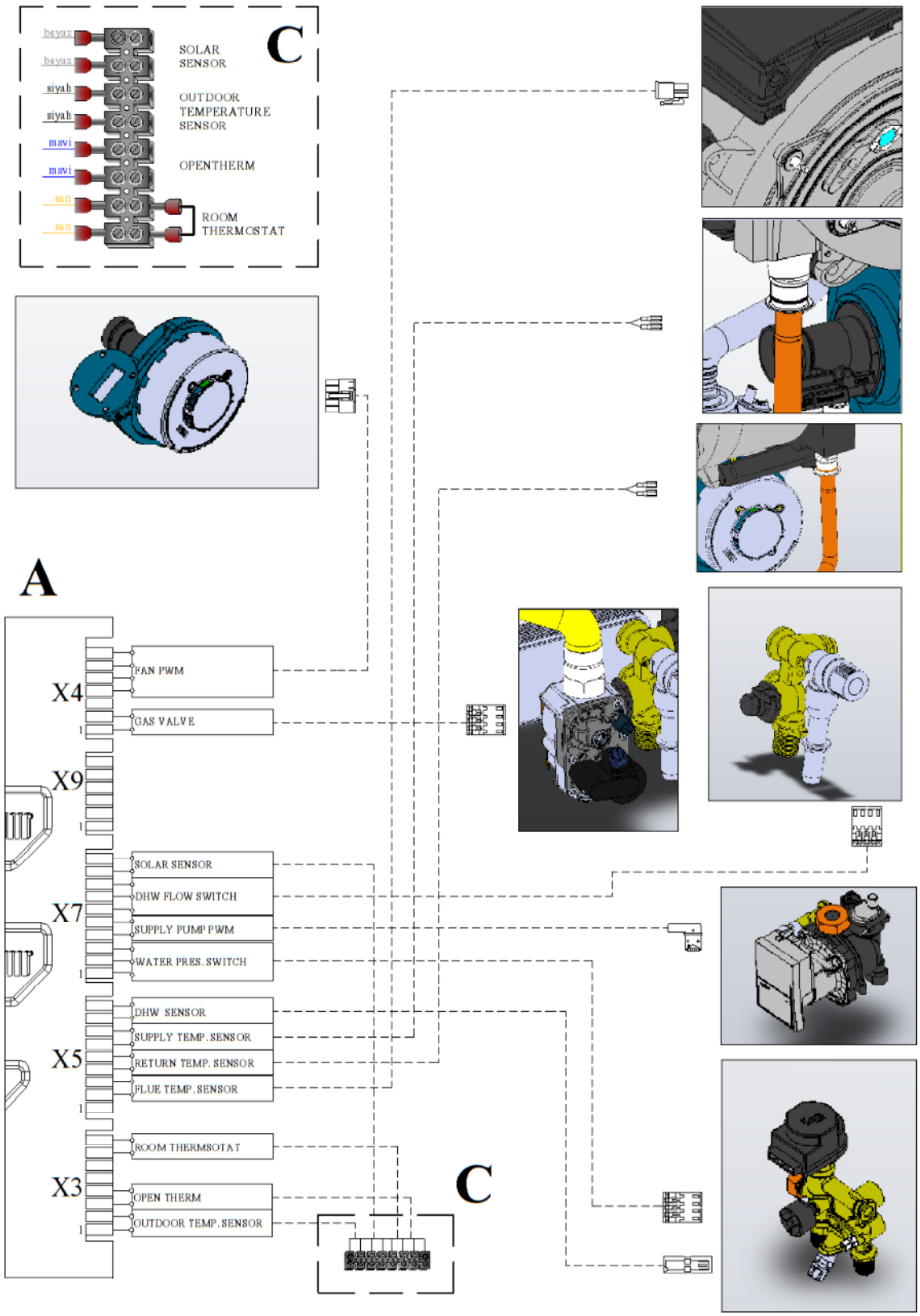
- **WT-S ONE OH / WT-S ONE OH+EX**



➢ **WT-S ONE BS**

1 - FAN
2 - PUMP
3 - 3 WAY VALVE
4 - IGNITION-IONIZATION ELECTRODE
5- OUTDOOR SENSOR
6- ROOM THERMOSTAT
7- FLUE GAS SENSOR
8- INLET TEMPERATURE SENSOR
9- OUTPUT TEMPERATURE SENSOR
10- DOMESTİC HOT WATER SENSOR
11- WATER PRESSURE SENSOR
12- PUMP PWM
13- SOLAR SENSOR
14- GAS VALVE
15- FAN PWM

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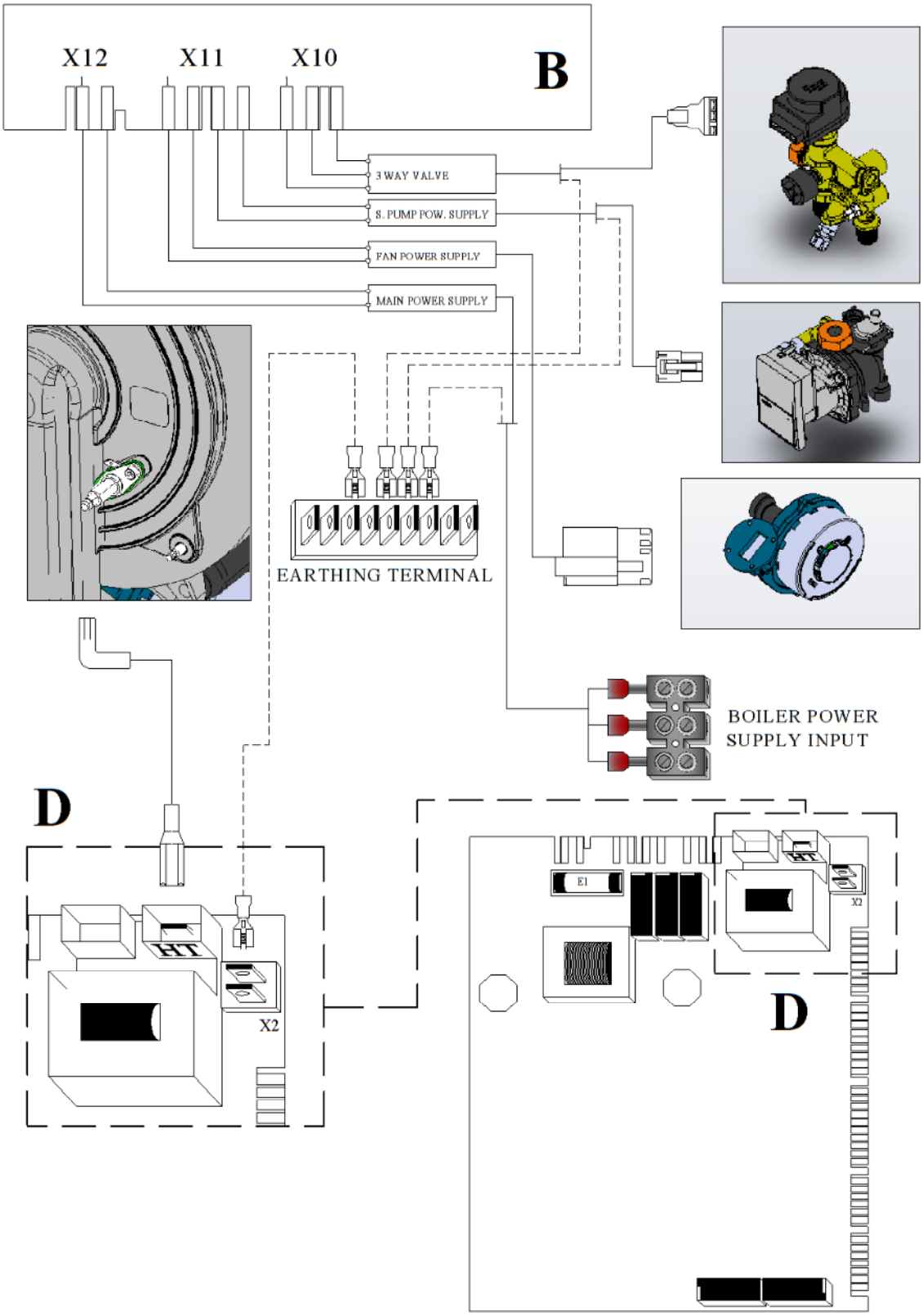
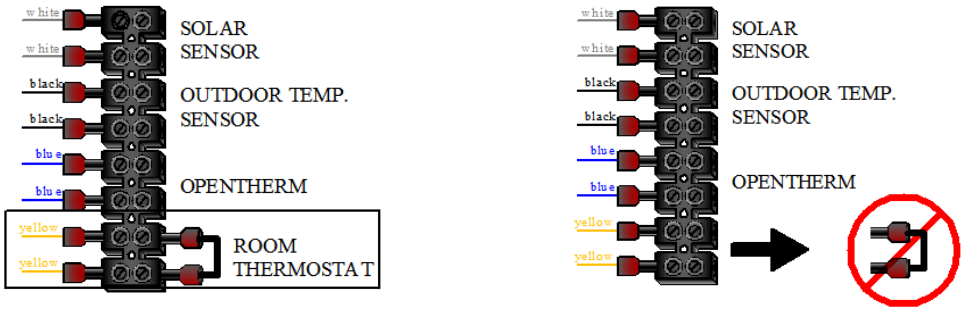
SOLAR SENSOR
OUTDOOR TEMPERATURE SENSOR
OPENTHERM
ROOM THERMOSTAT
A
X4
FAN PWM
GAS VALVE
X9
X7
SOLAR SENSOR
DHW FLOW SWITCH
SUPPLY PUMP PWM
WATER PRES. SWITCH
X5
DHW SENSOR
SUPPLY TEMP. SENSOR
RETURN TEMP. SENSOR
FLUE TEMP. SENSOR
X3
ROOM THERMSOTAT
OPEN THERM
OUTDOOR TEMP. SENSOR
C

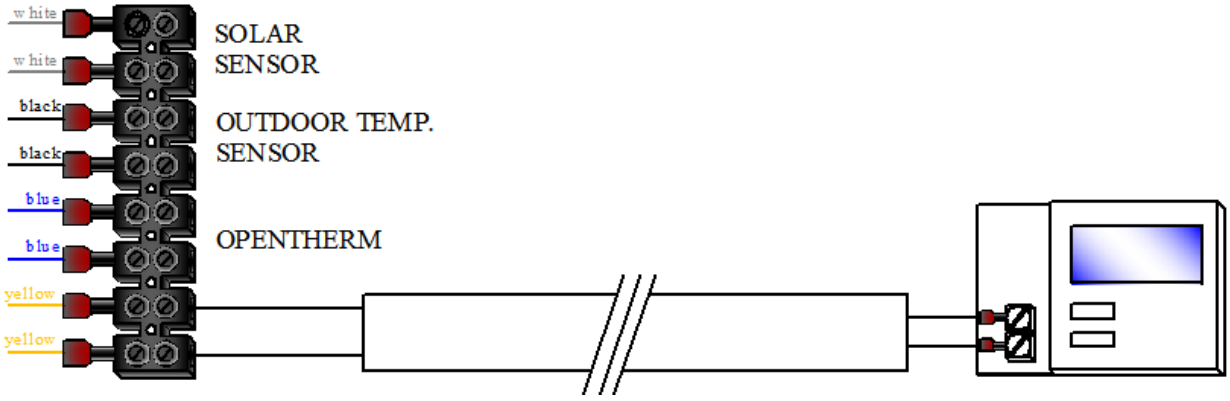

X12
X11
X10
B
3 WAY VALVE
S. PUMP POW. SUPPLY
FAN POWER SUPPLY
MAIN POWER SUPPLY
EARTHING TERMINAL
BOILER POWER
SUPPLY INPUT
D
X2
E1
X2
D

12.1. Connection of room thermostat

Perform the connections of the related terminals in the panel box as shown in the illustration below.



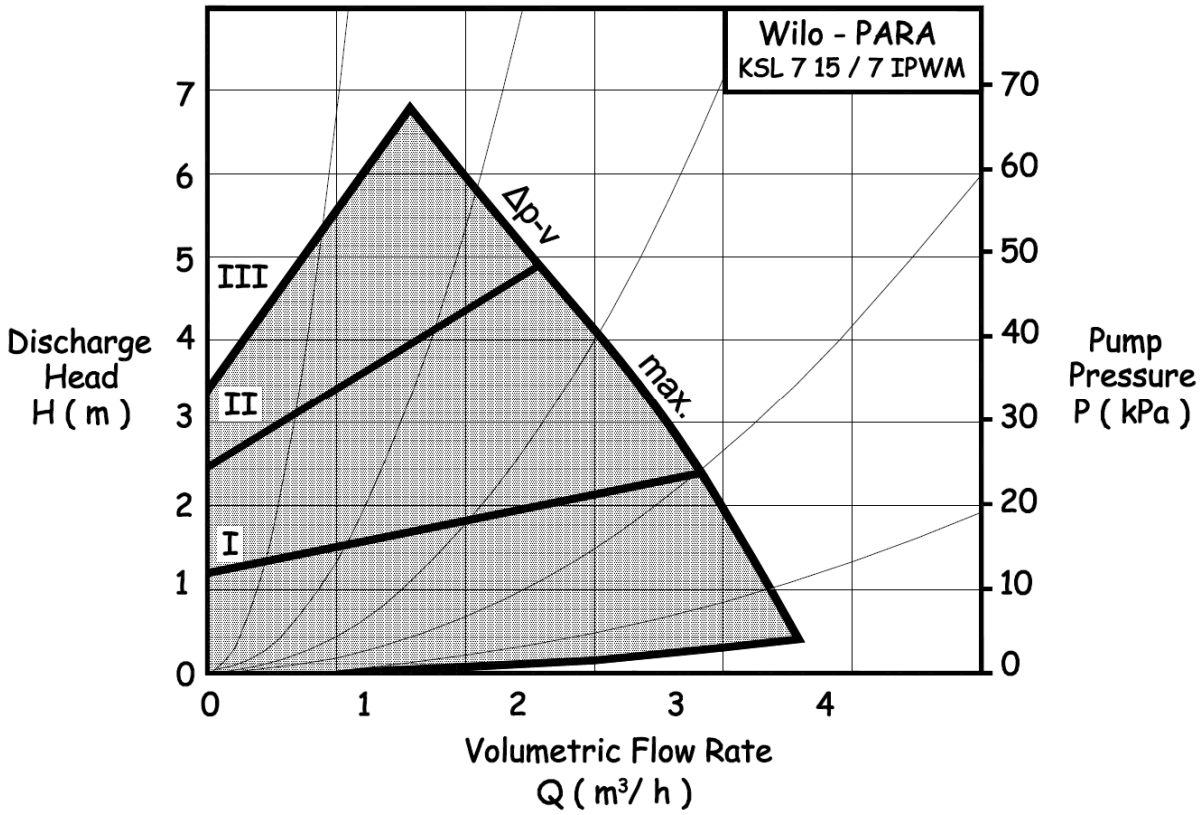
Closure of Room Thermostat contact generates a heat demand in CH mode.



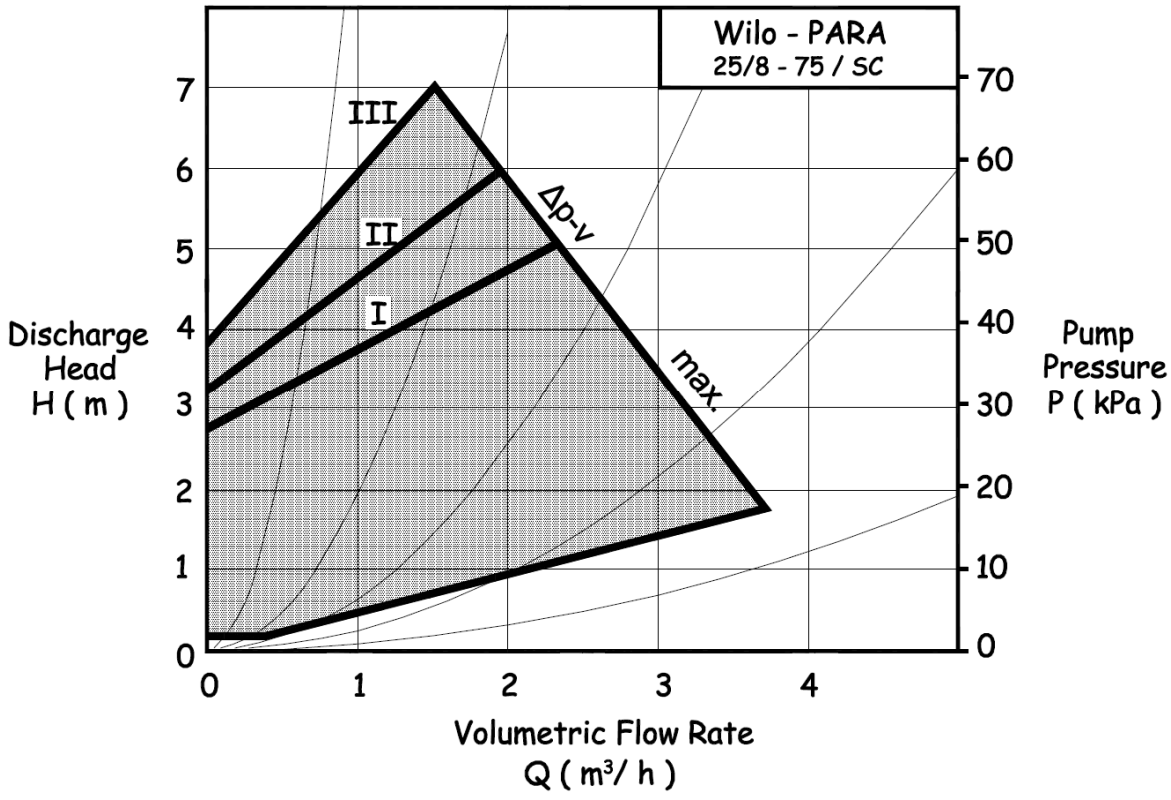
	If the room thermostat is not connected to the boiler, the related two terminals should be connected

13. PUMP CHARACTERISTIC CURVE

- **WT-S ONE 35 OH, WT-S ONE 35 OH+EX, WT-S ONE 35 BS, WT-S ONE 45 OH, WT-S ONE 45 OH+EX, WT-S ONE 45 BS**



- **WT-S ONE 55 OH, WT-S ONE 55 BS, WT-S ONE 65 OH, WT-S ONE 65 BS**



14. EMISSION SETTINGS

Check the emission values at minimum and maximum capacities again and adjust combustion parameters precisely by following above steps.

After adjustment of parameters are finished, close all measurement points as they will be leak proof.

Flue gas emission values and flue gas temperature limit values are given at below table:

	Min.	Max.
O2 (%)	4,5-5	5,5-6
CO (ppm)	<250	
CO2 (%)	8,4-9,5	
Flue Gas Temperature °C	<80	

15. MAINTENANCE

15.1. Monthly Maintenance

Monthly maintenance is a comprehensive process where general checks of condensing boiler and peripheral components are performed to prevent possible faults. After completion of maintenance and adjustment processes, make sure to perform an emission analysis.

- Clean gas and water line filters.
- Perform insulation measurements of ignition and ionization electrodes, replace electrodes should there be leakage to the body.
- Check ignition cables and sockets.
- Check all wiring points. Tighten loose connections.
- Check gas line pressure, it must be the same with the first adjusted pressure, otherwise the boiler load and emission values will also have changed.
- Check all bolts of the boiler. Tighten loose bolts.
- After starting the condensing boiler and making required adjustments, perform flue gas emission measurement and check if there is an ideal combustion.

15.2. Seasonal Maintenance

It is a comprehensive maintenance work when the condensing boiler is re-started after long periods of shut-down or interruptions. After completion of maintenance and adjustment processes, make sure to perform a combustion analysis.

- Check ignition and ionization electrodes.
- Check the operating function.
- Check the inlet/outlet water sensors.

Condensing Water Syphon should be cleaned from dust and dirts in every 3 months and also beginning of every winter.

Follow installation directions during maintenance.

Periodic maintenance shortages in condensing boilers can cause carbon monoxide poisoning.

When an operation is performed with the system water pressure, it is necessary to carry out the air removal process due to reasons such as water loss and fill from water installation during seasonal and monthly maintenance.

16. LIST OF ERROR CODE

Error Code	Description	Cause-Solution
E01	Ignition Lockout indication	Lockout signal after no flame and all ignition trials are expired. Manual/remote reset is required.
E02	False flame indication	If flame signal is measured with no heat demand currently present. Manual/remote reset is required.
E03	High limit temperature protection (supply or return sensor)	High limit temperature protection detected on supply or return sensor. Manual/remote reset is required.
E05	No frequency feedback from fan after 1 minute	Fan driving problem – if the controller doesn't detect the expected tacho signal from the fan for 1 minute longer, error will be set. Manual/remote reset is required.
E08	Flame circuit failure	The detected flame level is outside expected bounds, meaning a problem on electronic components.
E09	Valve feedback error	The valve feedback doesn't respect controller commands.
E12	EEPROM integrity lockout	The EEPROM check fails. The data in EEPROM are corrupted.
E15	Drift sensors check failed	Drift sensors check failed. Manual/remote reset is required.
E16	Supply sensor stuck_at test failed	Stuck_at test on Supply sensor failed. Manual/remote reset is required.
E17	Return sensor stuck_at test failed	Stuck_at test on Return sensor failed. Manual/remote reset is required.
E18	Cracked sensor test failed	Crack sensor test failed. Manual/remote reset is required.
E21	Adc failure	Adc failure. The adc test executed at runtime fail, that detect a major fault on electronic components.
E33	Return water temperature sensor error	Return sensor out of normal operating range (short circuit or open circuit).
E35	Supply water temperature sensor error	Supply sensor out of normal operating range (short circuit or open circuit).

17. SOLUTION RECOMMENDATIONS FOR SOME OF THE PROBLEMS

Problem	Cause	Explanation-Recommendation
Gas smell	Gas line/Gas connections	Control of leak proofing of connections is required. Be sure that measurement points are closed.
Unburned gas smell	Flue tightness	Be sure that flue connections are leak proof and measurement points are closed. Check the combustion parameters.
Incomplete combustion	Gas supply pressure	Check the gas pressure complies with stated values.
	Fan problem	Check the working of fan.
	State of premix combustion head and heat exchanger	Check the state of combustion head and heat exchanger and ensure that both are clean.
	Combustion air connection	Check that there is nothing that blocks air suction and if the impulse connection is correct.
Shaky activation of burner	Gas pressure/Combustion parameters	Check the gas pressure and combustion parameters.
No combustion after ignition	Electrode/Ionization	Check the position/state of the electrode/ionization rod.
Boiler does not work.	Electric connection	Check the fuse and electrical connections.
	Sensor connections	Ensure that connections of sensors are correct and complete.
Boiler can’t reach the desired temperature.	Gas pressure	Ensure that gas pressure complies with stated values and there is constant gas flow at sufficient pressure.
	Heat exchanger	Control the state of combustion chamber.
	Boiler control	Control that boiler is at correct operation mod and temperature settings.
Safety valve activates often.	Safety valve	Ensure that safety valve settings are correct and works properly.
	Expansion tank	Check if it works properly.
Pump does not work.	Pump malfunction	Check the pump electric connections and parameters. Change the pump if there is proble in pump operation.

18. AFTER SALES SERVICES

Dear Customer,

We believe that providing a good service is as important as providing a good product. Therefore, we continue offering wide range of comprehensive services to our conscious customers.

For your suggestions, complaints and service requests

Esentepe Mah.Milangaz Cad. No:75 K:3
Kartal Monumento Plaza
KARTAL/İSTANBUL/TÜRKİYE
Tel: 444 8 326
Fax: +90 216 370 45 03

Factory Contact Details

Türkgücü OSB
Bülent Ecevit Bulvarı No:11
ÇORLU/TEKİRDAĞ/TÜRKİYE
Tel: +90 282 685 44 80-81
Fax: +90 282 685 42 09

Also you can contact with us:

Web site : www.ecodense.com
E - mail : servis@ecodense.com

Please observe the following recommendations.

- Use the product in accordance with the principles of this manual.
- For any service demands regarding the product, please contact our Service Center from the above-mentioned phone numbers.
- Upon your purchase, register your warranty certificate during installation.

19. NOTES

Please record and forward your measurements and observations to us.
www.ecodense.com