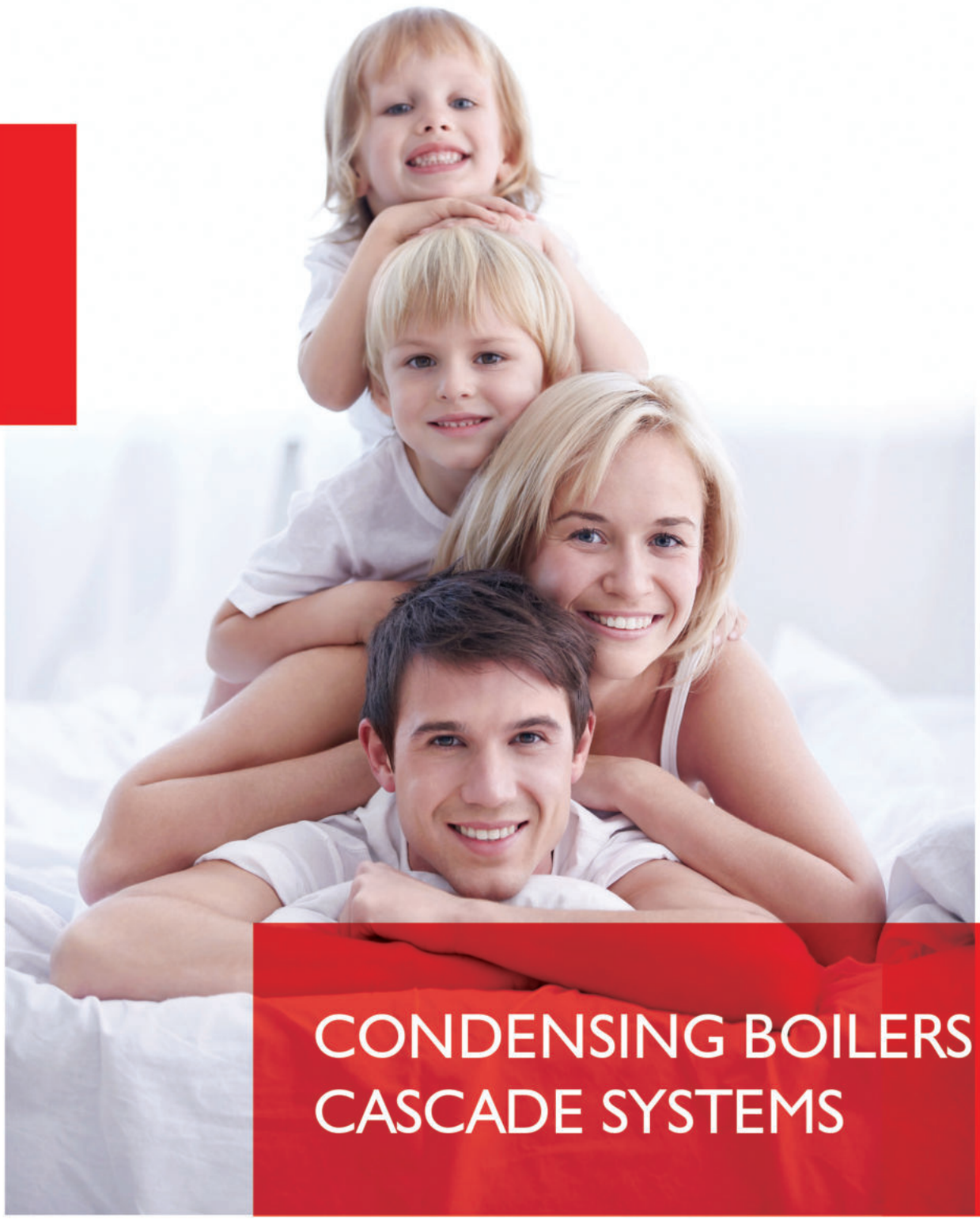
www.ecodenseboilers.com

ecodense®
CONDENSING BOILER



CONDENSING BOILERS and CASCADE SYSTEMS


ecodense®
CONDENSING BOILER

Ecodense Condensing Boilers

ECODENSE condensing boilers provide high-efficiency energy generation with their ***"Premix Technology"*** and ***"Condensing Technology".*** Providing a space advantage in boiler room planning and conversions for individual and central heating boilers with its compact structure, **ECODENSE** condensing boilers, when used as CASCADE, meet high-capacity energy requirements with line-up operation and also expand the life-cycle of boilers by ensuring equal aging in boilers.

WALL HUNG TYPE

WT SERIES

(65 - 150 kW)

WT-S SERIES

(45 - 145 kW)

WT-S ONE SERIES

(35 - 65 kW)

WT-S DHW SERIES

(45 - 65 kW)

FLOOR TYPE

FTC –X SERIES

(200 - 760 kW)

FTC –MG SERIES

(800 - 3000 kW)

FT-S SERIES

(315 - 1060 kW)

ROOF TOP

(65 - 300 kW)

CONDENSING TECHNOLOGY

At the end of the combustion process, a large proportion of heat is released outside along with waste gases. The Condensing technology does not allow releasing of this heat; provides higher energy saving. In the heat Boiler Return, the heat of water is drawn and sent to the heating system. When compared with the classic combustion system, the ratio of benefiting from latent heat of the fuel used with the Condensing technology reaches the maximum level, providing thermal efficiency of more than 100%.

CASCADE SYSTEM

In these systems, multiple devices that are connected to each other engage/disengage as needed. In the Cascade system, all devices operate as modulation-controlled. In order to ensure simultaneous control of all boilers, they must be connected to the control unit.
With **ECODENSE** condensing boilers, it is possible to control up to 16 boilers as **CASCADE**. If any one of the boilers operating redundantly fails, the next boiler connected serially engages automatically and no problem is experienced in the order of operation. Thus, serviceability and maintainability of these boilers are ensured.

PREMIX TECHNOLOGY

Mixing of gas and air required for combustion in order to achieve high-efficiency combustion before they arrive to burner is called as ***"Premix Technology".*** By a frequency-controlled fan, it is possible to provide ideal air content required for combustion at each capacity during high modulating operation.

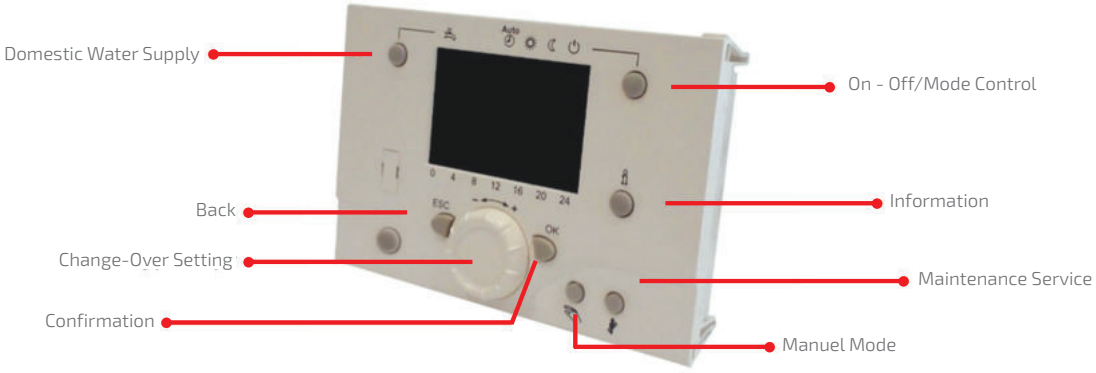
BOILER SAFETY

- When outdoor temperature goes below +4 °C, the boiler automatically protects itself and prevents freezing.
- The boiler protects itself, when the temperature of flue gas exceeds the set value during operation;
- The boiler protects itself during unexpected high temperatures with combustion space safety thermostat.
- It saves from consumption of gas, water and electricity thanks to low energy consumption levels.

*** Our appliances comply with the Regulation 2016/426/AB on appliances burning gaseous fuels, EN-15502-1+A1:2015 standards and ErP energy productivity regulations.*

CONTROL PANEL FEATURES

AVAILABLE FOR WT, WT-S, FTC-X, FTC-MG, FTS, ROOF TOP SERIES



Desired language from the languages defined in the Control Panel may be selected for system control.

Heating circuits operate in 3 different temperature values: Appliance comfort mode temperature, Economy temperature and freezing mode temperature

You can control the system using weekly timing program and save energy when you run it in economy mode.

You can switch to vacation mode for the heating circuit via the Control Panel during your vacation.

Heating curve can be adjusted depending on climate conditions.

Adjustable minimum and maximum water temperature for floor heating systems.

The last 20 errors in the control device can be viewed using the relevant parameter.

It is compatible to run with solar power.

Additional modules, instant water heater, return water tempera-ture, heating circuit control can be added to the Control Panel.

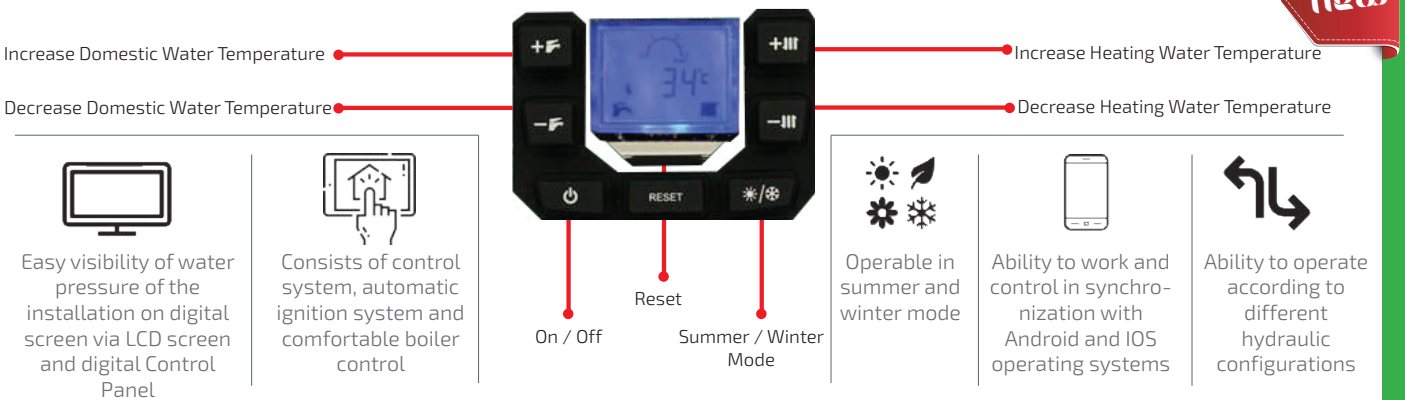
Cascade module can allow the system to operate as cascade.
For wall mounted boilers, 16 boilers, including 1 master and 15 slave boilers, can be controlled as cascade.

Special operating menu ensures measurement of the boiler operating times.

The servicing icon shows that it is time for maintenance and allows tracking the time passed from the last maintenance.

AVAILABLE FOR WT-S ONE, WT-S DHW SERIES

new



Easy visibility of water pressure of the installation on digital screen via LCD screen and digital Control Panel

Consists of control system, automatic ignition system and comfortable boiler control

Operable in summer and winter mode

Ability to work and control in synchro-nization with Android and IOS operating systems

Ability to operate according to different hydraulic configurations

Easy inlet connections of combined ignition ionization electrodes

With the simple parameter menu and troubleshooting system, it switches to failure mode and is locked depending on the state of flame

Full protection against freezing of heating and domestic water in low ambient temperatures

External room thermostat and OpenTherm applications provide maximum comfort

Low fuel consumption and fixed combustion efficiency thanks to PWM driver high modulating fan and high modulating gas valve

Ability to operate according to different heat demand with the variable flow pump control

Anti-blockage System: Circulation pump is activated automatically once in 24 hours and prevent blockage.

WT SERIES

WALL HUNG TYPE CONDENSING BOILER

FEATURES

- High efficiency with Condensing technology and Premix burner with micro-flame metal fiber coated steel flame tube,
- 8 different thermal capacity options (65, 80, 90,100,110,115,125 and 150 kW) in WT series aluminum-alloy individual boilers with Heat Exchanger and spiral fin, Wide capacity range up to 2400 kW in CASCADE systems,
- When used as CASCADE, it allows control of 16 boilers + 1 outdoor sensor + 1 mixed valve with the Control Panel on the boiler,
- ***New!*** Maximum air and water permeability with hermetic casing,
- ***New!*** Increased combustion safety with Back Current Damper,
- Energy saving through 5:1 modulating operation,
- Allows simple control with easy-to-use illuminated LCD panel; and viewing error codes and boiler information from one single panel,
- Allows programming of daily and weekly operation schedule,
- Allows seasonal heating program during summer and winter times,
- Ability to operate with Natural Gas and LPG,
- Allows operation in lower sound volumes,

109% Thermal efficient, aluminum-alloy, spiral fine Heat Exchanger

Internal Back Current Damper

Hermetic flue connection with impermeable casing

AREAS OF USE

House/Residence | Hotels | Hospitals | Schools | Plazas / Shoping Malls | Gyms | Swimming Pools

ECODENSE WT SERIES
WALL-TYPE CONDENSING BOILER

TECHNICAL SPECIFICATIONS	UNIT	WT 65	WT 80	WT 90	WT 100	WT 110	WT 115	WT 125	WT 150
Thermal Capacity									
Maximum Heating Capacity	kW	65	80	88	100	110	115	125	150
Minimum Heating Capacity	kW	20	20	22	25	25	25	25	25
Maximum Heat Discharge for Heating (80°C / 60°C)	kW	63,4	76,4	88	98	108,5	112,7	122,5	138
Minimum Heat Discharge for Heating (80°C / 60°C)	kW	13,7	16	17	17,6	19	19	19,1	19,5
Maximum Heat Output for Heating (50°C / 30°C)	kW	69	85,6	98,5	105	114,9	121	131	151
Minimum Heat Output for Heating (50°C / 30°C)	kW	15,1	17,6	18,5	19,5	21	21	21	21,5
Thermal Efficiency									
Efficiency @ Pmaks. (80°C / 60°C)	%	98%	95,5%	98%	98%	98%	98%	98%	98,1%
Efficiency @ Pmin. (80°C / 60°C)	%	98,1%	98,3%	98,4%	98,2%	98,7%	98,6%	98,4%	98,3%
Efficiency @ Pmaks. (50°C / 30°C)	%	106,5%	106,2%	106,4%	106,2%	106,8%	106,4%	106,2%	106,3%
Efficiency @ Pmin. (50°C / 30°C)	%	107,1%	107,2%	107%	107,4%	107,2%	107,3%	107,6%	107,8%
Efficiency @ 30% (30°C)	%	109%	109%	109%	109%	109%	109%	109%	109%
Domestic Water Circuit									
Temperature Setting Range with External Hot Water Storage Tank	°C	10-65	10-65	10-65	10-65	10-65	10-65	10-65	10-65
Heating Circuit									
Maximum Heating Water Temperature	°C	90	90	90	90	90	90	90	90
Water Volume	L	5	5	5	7	7	7	7	9
Maximum Heating Water Pressure	bar	6	6	6	6	6	6	6	6
Minimum Heating Water Pressure	bar	1	1	1	1	1	1	1	1
Gas Properties									
Gas Type	-	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31
Gas Inlet Pressure (G20)	mbar	20	20	20	20	20	20	20	20
Gas Inlet Pressure (G31)	mbar	37	37	37	37	37	37	37	37
Combustion Properties									
Maximum Flue Gas Temperature (50°C / 30°C)	°C	42	42	42	43	45	45	45	45
Maximum Flue Gas Temperature (80°C / 60°C)	°C	65	65	65	65	65	65	65	65
Electric Properties									
Power Supply	V / Hz	230/50	230/50	230/50	230/50	230/50	230/50	230/50	230/50
Protection Class	IP	X5D	X5D	X5D	X5D	X5D	X5D	X5D	X5D
Energy Consumption	W	100	100	100	200	200	200	200	300
Fuse Current Value to be Used	A	6	6	6	6	6	6	6	6
Installation Connection Properties									
Gas Connection Pipe Diameter	inch	3/4''	3/4''	3/4''	3/4''	3/4''	3/4''	3/4''	3/4''
Heating Circuit Inlet and Outlet Piping Diameter	inch	1 ½"	1 ½"	1 ½"	1 ½"	1 ½"	1 ½"	1 ½"	1 ½"
General Features									
Net Weight	kg	50	50	50	70	70	70	70	80
Flue Diameter (Ø)	mm	80/125	80/125	80/125	80/125	80/125	80/125	80/125	80/125
NOx Emission Class (EN 15502-1+A1)		6	6	6	6	6	6	6	6

G 20 Natural Gas, G 31 LPG

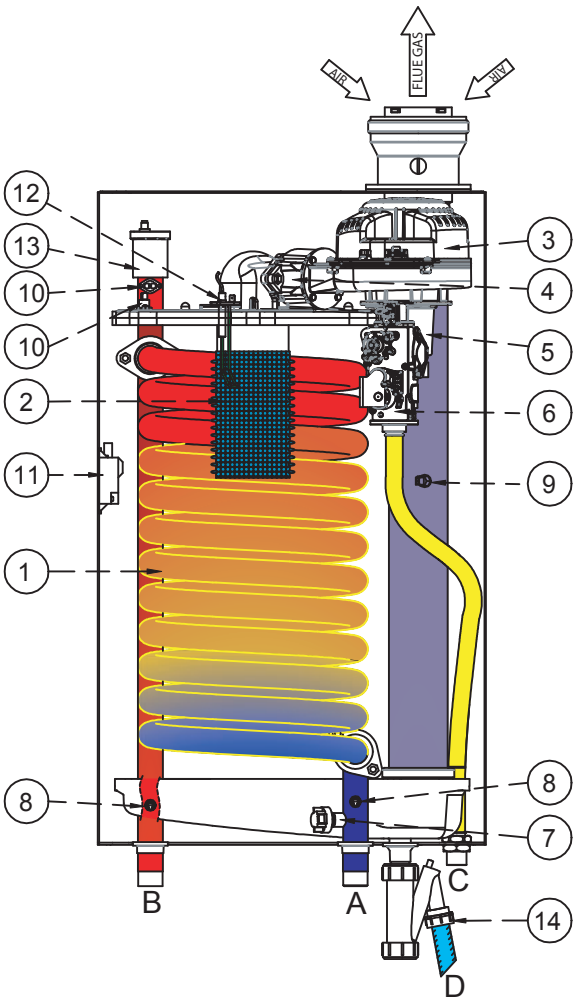
FLOW DIAGRAM

CONNECTIONS

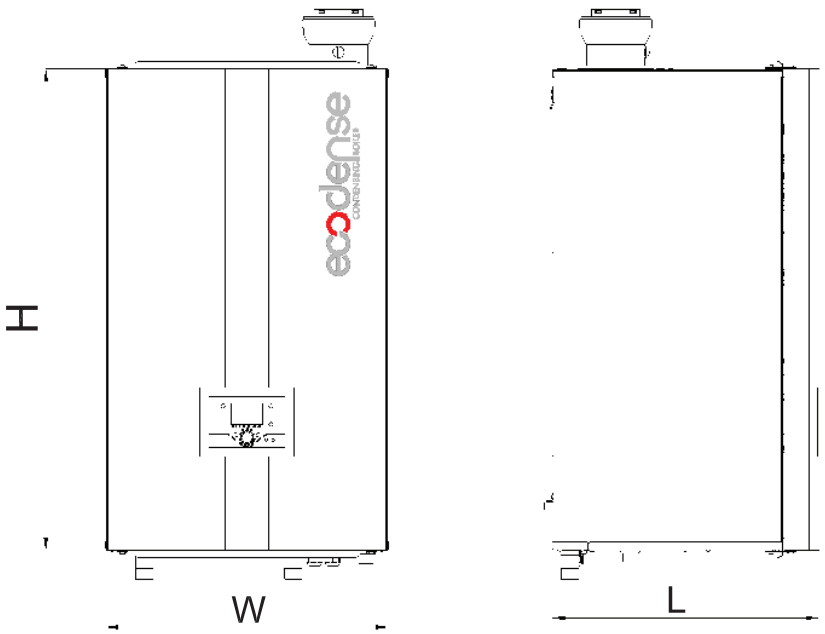
A - Boiler Inlet
B - Boiler Outlet
C - Gas Inlet
D - Condensate Outlet

MAIN PARTS

1 - Al-Si-Mg Heat Exchanger
2 - Premix Flame Tube
3 - Fan
4 - Back Current Damper
5 - Venturi / Mixer
6 - Gas Valve
7 - Pressure Sensor
8 - Inlet / Outlet Temperature Sensor
9 - Flue Gas Sensor
10 - Limit Thermostat
11 - Ignition Transformer
12 - Ignition and Ionization Electrode
13 - Air Purger
14 - Condensate Trap

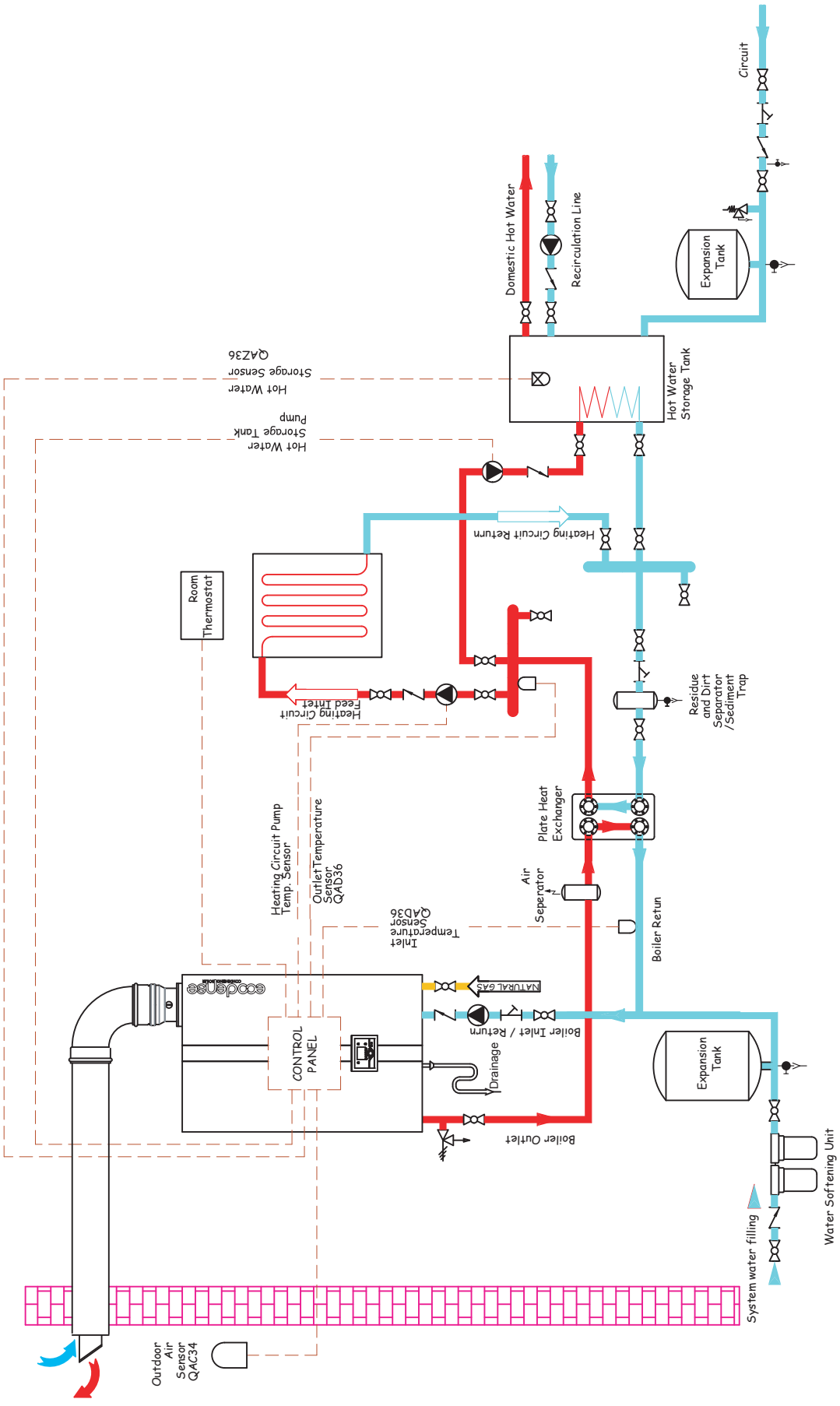


OUTER DIMENSIONS & SIZES TABLE

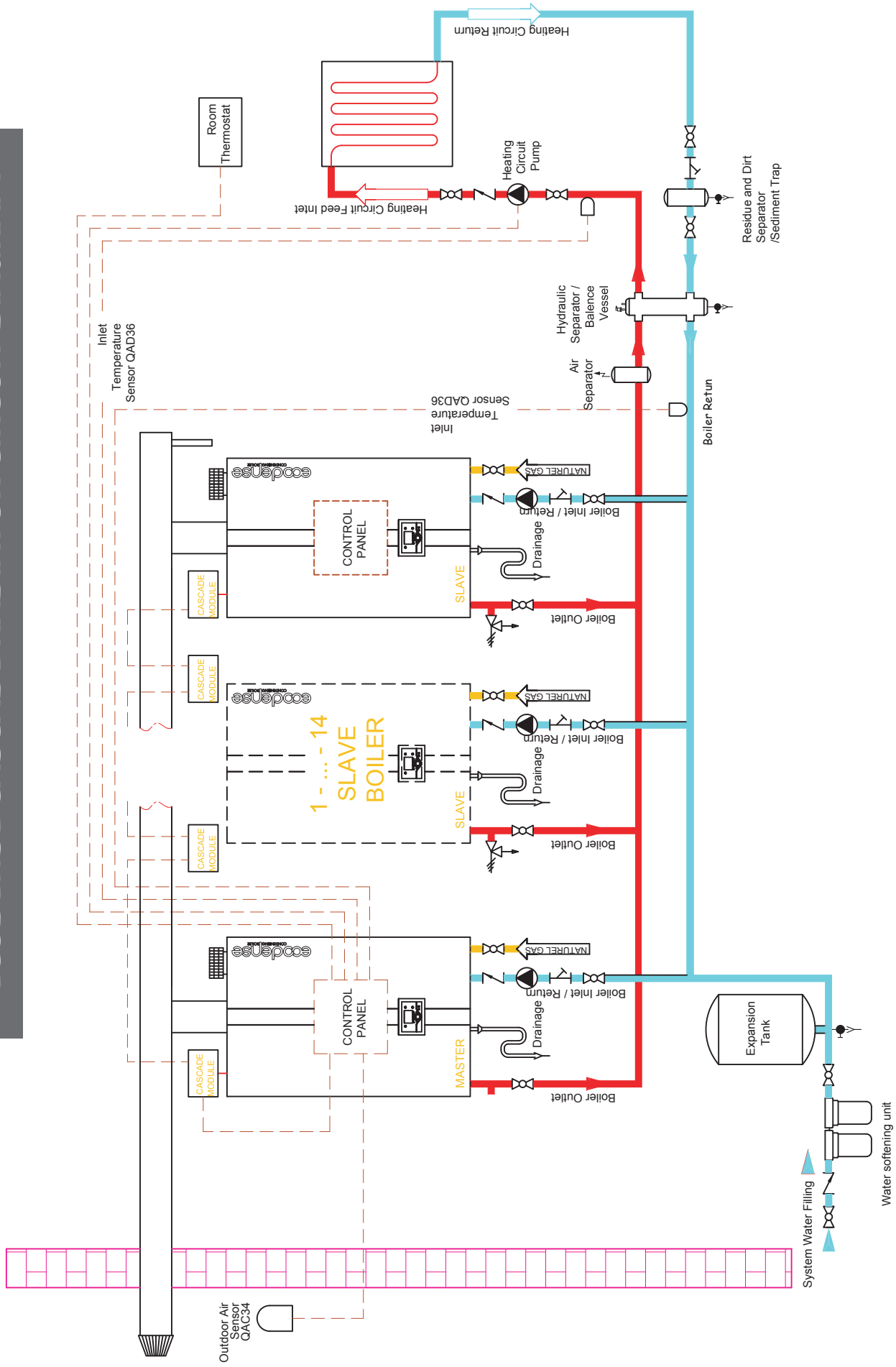


MODEL	W (mm)	H (mm)	L (mm)
WT-65	725	530	500
WT-80	725	530	500
WT-90	725	530	500
WT-100	725	530	500
WT-110	895	530	500
WT-115	895	530	500
WT-125	895	530	500
WT-150	950	540	500

ECODENSE CONDENSING BOILER RADIATOR+ HOT WATER STORAGE TANK CIRCUIT DIAGRAM



ECODENSE CASCADE RADIATOR CIRCUIT DIAGRAM



WT-S SERIES

WALL HUNG TYPE CONDENSING BOILER

FEATURES

- High efficiency with Condensing technology and Premix burner with micro-flame metal fiber coated steel flame tube,
- 6 different thermal capacity options (45 kW, 55 kW, 65 kW, 100 kW, 120 kW and 145 kW) in WT-S series stainless steel individual boiler with Heat Exchanger , Wide thermal capacity range up to 2320 kW in CASCADE systems,
- Low energy consumption with modulating primary circuit pump integrated to the boiler,
- When used as CASCADE, it allows control of 16 boilers + 1 outdoor sensor + 1mixed valve with the Control Panel on the boiler,
- Energy saving through 5:1 modulating operation,
- Allows simple control with easy-to-use illuminated LCD panel; and viewing error codes and boiler information from one single panel,
- Allows programming of daily and weekly operation schedule,
- Allows seasonal heating program during summer and winter times,
- Ability to operate with Natural Gas and LPG,
- Allows operation in lower sound volumes,
- Environmentally-friendly with lower NOx and CO emission

107% Thermal efficient Stainless steel Heat Exchanger

Modulating primary circuit pump integrated to the boiler

Hermetic flue connection with impermeable casing

AREAS OF USE

House/Residence

Hotels

Hospitals

Schools

Plazas / Shoping Malls

Gyms

Swimming Pools

ECODENSE WT-S SERIES
WALL-TYPE CONDENSING BOILER

TECHNICAL SPECIFICATIONS	UNIT	WT-S 45	WT-S 55	WT-S 65	WT-S 100	WT-S 120	WT-S 145
Thermal Capacity							
Maximum Heating Capacity	kW	45	55	65	100	120	145
Minimum Heating Capacity	kW	11	12	13,5	14	15	17,5
Maximum Heat Discharge for Heating (80°C / 60°C)	kW	43,7	53,4	63,1	97	116,4	140,7
Minimum Heat Output for Heating (80°C / 60°C)	kW	12,3	13,1	13,7	15,2	16,8	18,2
Maximum Heat Discharge for Heating (50°C / 30°C)	kW	46,4	57,2	67,6	102,8	123,6	150,8
Minimum Heat Load (50°C / 30°C)	kW	12,9	13,9	14,6	15,8	17,3	19,2
Efficiency							
Efficiency @ Pmax. (80°C / 60°C)	%	97	97,5	97,4	97,4	97	97,2
Efficiency @ Pmin. (80°C / 60°C)	%	98,5	98,5	98	98,2	98,4	98,2
Efficiency @ Pmax. (50°C / 30°C)	%	105,2	105,3	105,4	105,6	105,3	105,6
Efficiency @ Pmin. (50°C / 30°C)	%	107,4	107,6	107,2	107,1	107,3	107,4
Efficiency @ 30% (30°C)	%	108,7	109	108,2	108,6	108,4	108,7
Domestic Water Circuit							
Temperature Setting Range with External Hot Water Storage Tank	°C	10-65	10-65	10-65	10-65	10-65	10-65
Heating Circuit							
Maximum Operating Temperature	°C	85	85	85	85	85	85
Maximum Operating Pressure	bar	4-6	4-6	4-6	4-6	4-6	4-6
Minimum Operating Pressure	bar	0,8	0,8	0,8	0,8	0,8	0,8
Gas Properties							
Gas Type	-	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31
Gas Inlet Pressure (G20)	mbar	20	20	20	20	20	20
Gas Inlet Pressure (G31)	mbar	37	37	37	37	37	37
Combustion Values							
Maximum Flue Gas Outlet Temperature (50°C / 30°C)	°C	42	42	42	45	45	45
Maximum Flue Gas Outlet Temperature (80°C / 60°C)	°C	65	65	65	65	65	65
NOx Emission Class (EN 15502-1+A1)	-	5	5	5	5	5	5
Electrical Values							
Voltage & Frequency	V / Hz	230/50	230/50	230/50	230/50	230/50	230/50
Energy Consumption	W	150	190	190	300	300	300
Fuse Current Value to be Used	A	6	6	6	6	6	6
Hydraulic circuit properties							
Gas Connection	inch	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Heating Circuit Inlet and Outlet Piping Diameter	inch	1"	1"	1"	1"	1"	1"
General Features							
Net Weight	kg	45	47	50	53	58	61
Flue Diameter (Ø)	mm	80/125	80/125	80/125	80/125	80/125	80/125

G 20 Natural Gas, G 31 LPG

FLOW DIAGRAM

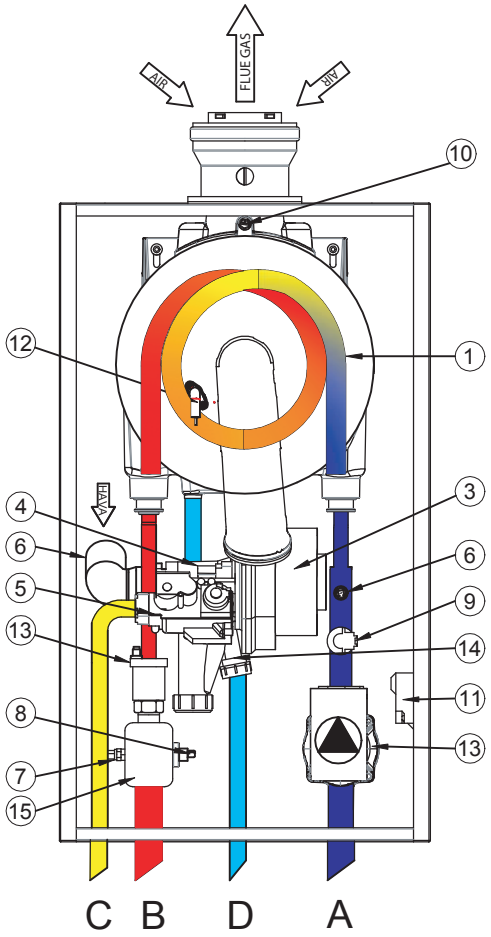
WT-S 45 - 55 - 65

CONNECTIONS

A - Boiler Inlet
B - Boiler Outlet
C - Gas Inlet
D - Condensate Outlet

MAIN PARTS

1 - Stainless Steel Heat Exchanger
2 - Circulation Pump
3 - Fan
4 - Venturi / Mixer
5 - Gas Valve
6 - Silencer
7 - Inlet / Outlet Temperature Sensor
8 - Limit Thermostat
9 - Pressure Sensor
10- Flue Gas Sensor
11 - Ignition Transformer
12- Ignition and Ionization Electrode
13- Air Purger
14- Condensate Trap
15- Collector



FLOW DIAGRAM

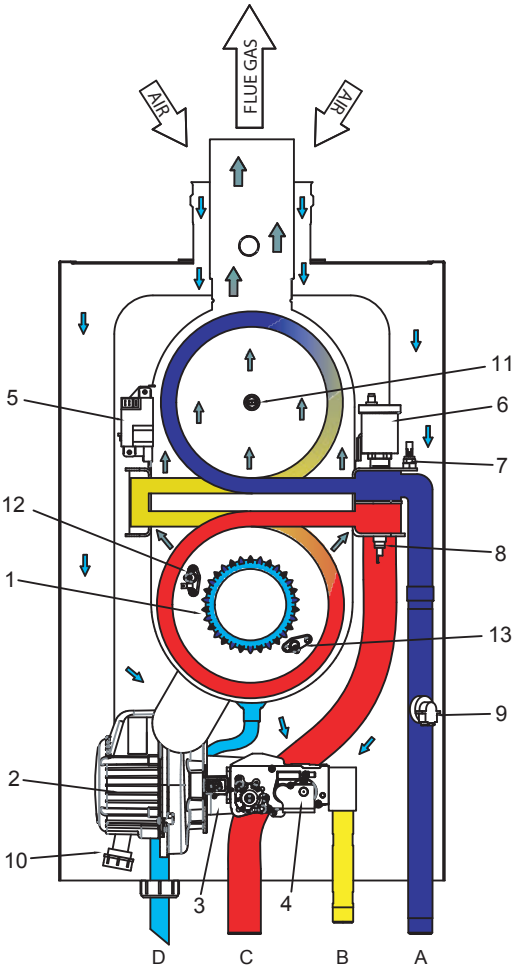
WT-S 100 - 120 - 145

CONNECTIONS

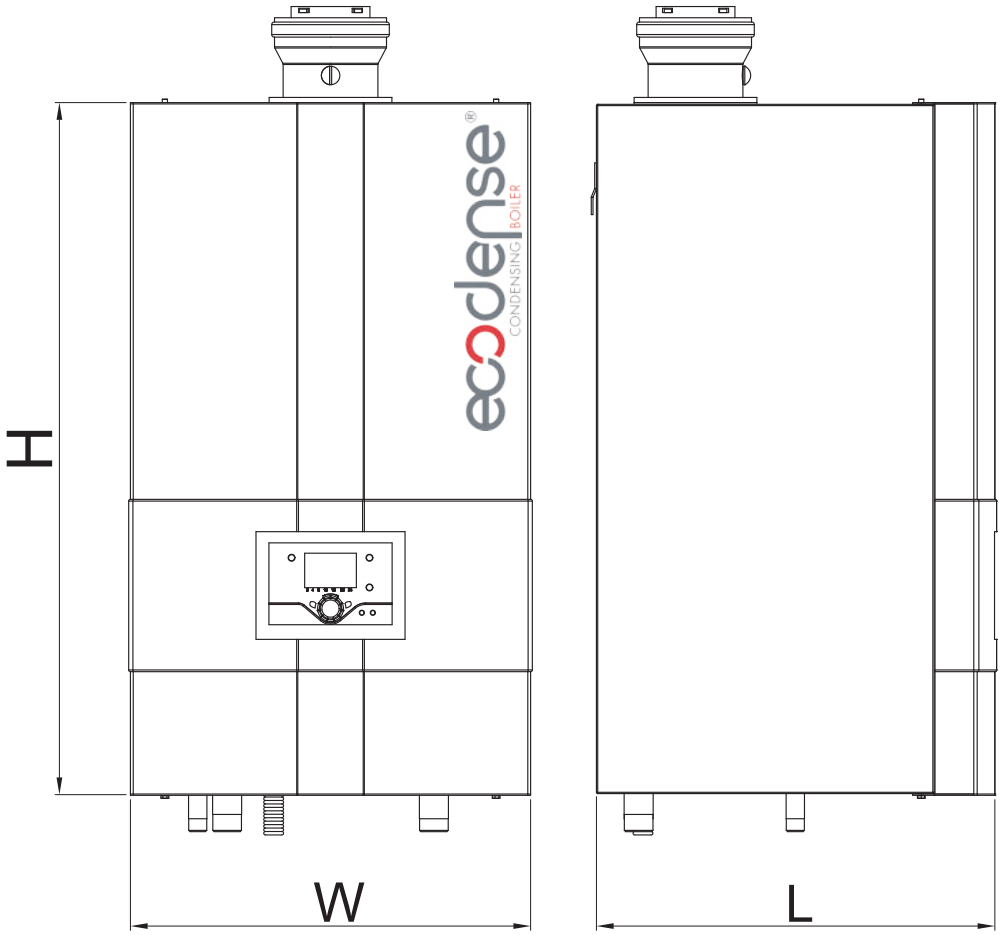
A - Boiler Inlet
B - Gas Inlet
C - Boiler Outlet
D - Condensate Outlet

MAIN PARTS

1 - Bluejet Premix Burner
2 - Fan
3 - Venturi (Mixer)
4 - Gas Valve
5 - Ignition Transformer
6 - Air Purger
7 - Return Water Sensor
8 - Feed Water Sensor
9 - Pressure Sensor
10- Condensate Trap
11 - Flue Gas Temperature Sensor
12- Ignition Electrode
13- Ionization Electrode

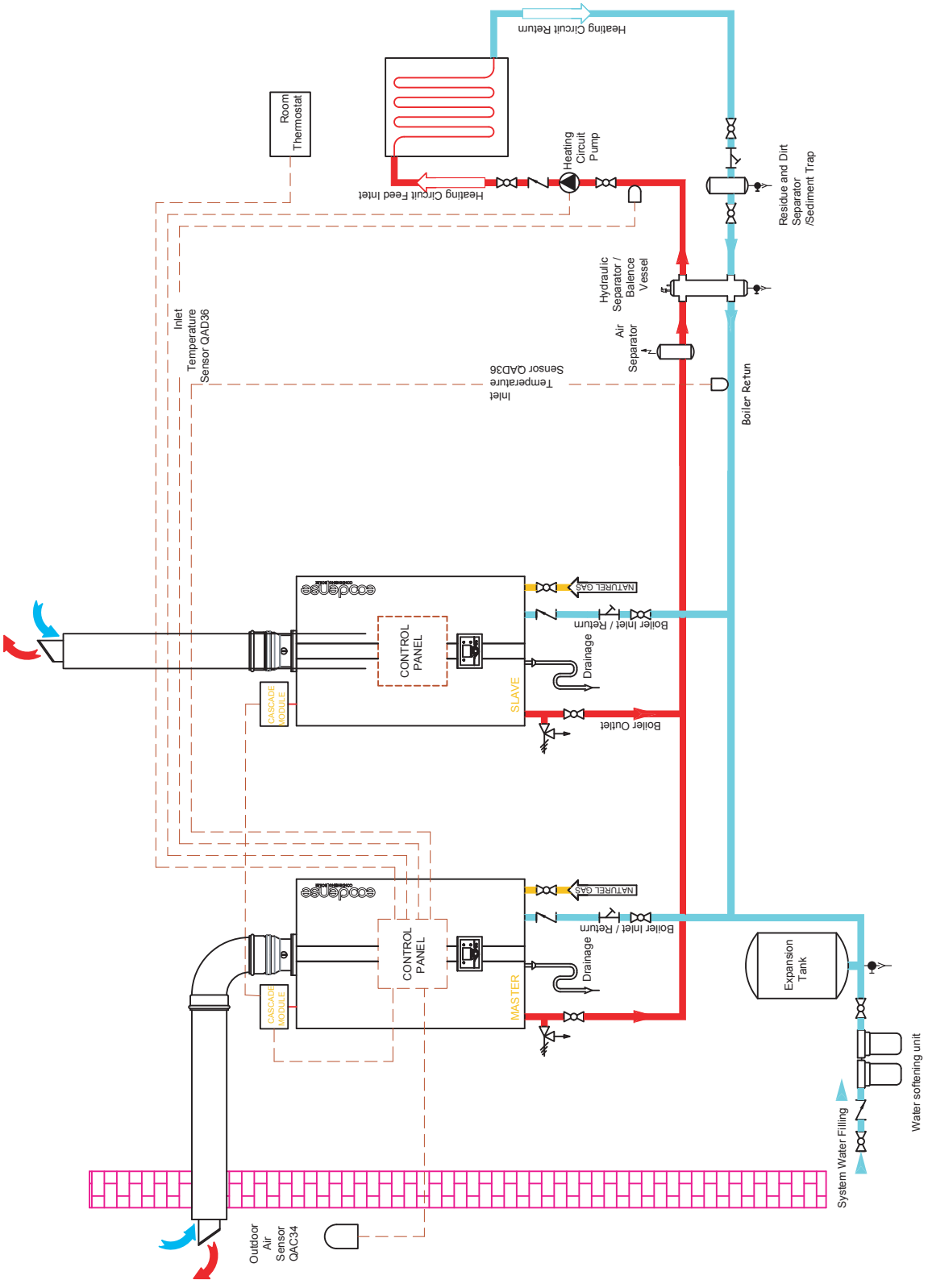


OUTER DIMENSIONS & SIZES TABLE



MODEL	W (mm)	H (mm)	L (mm)
WT-S 45	465	800	465
WT-S 55	465	800	465
WT-S 65	465	800	465
WT-S 100	465	1050	615
WT-S 120	465	1050	615
WT-S 145	465	1050	615

ECODENSE CONDENSING BOILER WT-S CASCADE RADIATOR CIRCUIT DIAGRAM



WT-S ONE OH, OH+EX ve BS SERIES

WALL-TYPE CONDENSING BOILER WITH STAINLESS STEEL HEAT EXCHANGER

NEW

OH SERIES:
HEATING ONLY WALL HUNG TYPE CONDENSING BOILER

OH+EX SERIES:
HEATING ONLY INTERNAL EXPANSION TANK WALL-TYPE CONDENSING BOILER

BS SERIES:
HOT WATER STORAGE TANK-SUPPORTED WALL HUNG TYPE CONDENSING BOILER

FEATURES

- High efficiency with Condensing technology and Premix burner with micro-flame metal fiber coated steel flame tube,
- 4 different thermal capacity options (35 kW, 45 kW, 55 kW, 65 kW) in WT-S ONE OH and BS Series boilers and 2 different thermal capacity options (35 kW, 45 kW) in WT-S ONE OH + EX Series boilers with stainless steel Heat Exchanger,
- Optional external domestic water storage tank for use with WT-S ONE BS series,
- Internal expansion tank option for use with WT-S ONE OH+EX series,
- Low energy consumption with modulating primary circuit pump integrated to the boiler,
- Energy saving through 5:1 modulating operation,
  Allows simple control with easy-to-use illuminated LCD panel; and viewing error codes and boiler information from this panel,
- Ability to operate with Natural Gas and LPG,
- Operation in low noise levels thanks to its body configuration with high heat and sound isolation,
- Superior safety features:
  - Flame safety control; ionization,
  - Flue gas temperature control,
  - Heating circuit overheating safety,
  - Frost protection,
  - Low water pressure safety,
- Optional room thermostat connection,
- Optional remote control,
- Environmentally-friendly with lower NOx and CO emission rates.

107% Thermal efficient Stainless steel Heat Exchanger

Modulating primary circuit pump integrated to the boiler

Internal Expansion Tank

Hot water with internal 3-way valve

AREAS OF USE

House/Residence | Hotels | Hospitals | Schools | Plazas / Shoping Malls | Gyms | Swimming Pools

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	8	10	12
Maximum Heat Discharge for Heating (80°C / 60°C)	kW	34,3	43,4	54,1	63,8
Minimum Heat Output for Heating (80°C / 60°C)	kW	6,9	7,6	9,5	11
Maximum Heat Output for Heating (50°C / 30°C)	kW	36,9	45,9	56,1	68,1
Minimum Heat Output for Heating (50°C / 30°C)	kW	7,3	8,1	10,3	11,7
Thermal Efficiency					
Efficiency @ Pmaks. (80°C / 60°C)	%	97,4%	97,3%	97,5%	97,4%
Efficiency @ Pmin. (80°C / 60°C)	%	98,6%	99%	99,1%	99,2%
Efficiency @ Pmaks. (50°C / 30°C)	%	105,1%	105%	105%	105,2%
Efficiency @ Pmin. (50°C / 30°C)	%	107%	107%	107%	107,3%
Efficiency @ 30% (30°C)	%	109%	109%	109%	109%
Heating Circuit					
Maximum Heating Water Temperature	°C	85	85	85	85
Maximum Heating Water Pressure	bar	3	3	3	3
Minimum Heating Water Pressure	bar	0,8	0,8	0,8	0,8
Gas Properties					
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
Combustion Properties					
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 Characteristics					
Power Supply	V / Hz	230/50	230/50	230/50	230/50
Protection Class	IP	X4D	X4D	X4D	X4D
Installation Connection Properties					
Gas Connection Pipe Diameter	inch	3/4''	3/4"	3/4"	3/4"
Heating Circuit Inlet and Outlet Piping Diameter	inch	3/4"	3/4"	1"	1"
General Features Connection Properties					
Net Weight	kg	47	50	58	61
Flue Diameter (Ø)	mm	60/100	60/100	80/125	80/125
NOx Emission Class (EN 15502-1+A1)	-	6	6	6	6

G 20 Natural Gas, G 31 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	7	8,5
Maximum Heat Discharge for Heating (80°C / 60°C)	kW	34,2	43,2
Minimum Heat Output for Heating (80°C / 60°C)	kW	7,1	7,9
Maximum Heat Output for Heating (50°C / 30°C)	kW	36,7	45,5
Minimum Heat Output for Heating (50°C / 30°C)	kW	7,2	8,2
Thermal Efficiency			
Efficiency @ Pmaks. (80°C / 60°C)	%	97,4%	97,3%
Efficiency @ Pmin. (80°C / 60°C)	%	98,6%	99%
Efficiency @ Pmaks. (50°C / 30°C)	%	105,1%	105%
Efficiency @ Pmin. (50°C / 30°C)	%	107%	107%
Efficiency @ 30% (30°C)	%	109%	109%
Heating Circuit			
Maximum Heating Water Temperature	°C	85	85
Maximum Heating Water Pressure	bar	3	3
Minimum Heating Water Pressure	bar	0,8	0,8
Gas Properties			
Gas Type	-	G20-G31	G20-G31
Gas Inlet Pressure (G20)	mbar	20	20
Gas Inlet Pressure (G31)	mbar	37	37
Combustion Properties			
Maximum Flue Gas Temperature (50°C / 30°C)	°C	40	42
Maximum Flue Gas Temperature (80°C / 60°C)	°C	65	65
Electrical Characteristics			
Power Supply	V / Hz	230/50	230/50
Protection Class	IP	X4D	X4D
Installation Connection Properties			
Expansion Tank Capacity	L	12	12
Gas Connection Pipe Diameter	inch	3/4"	3/4"
Heating Circuit Inlet and Outlet Piping Diameter	inch	3/4"	3/4"
General Features			
Net Weight	kg	50	53
Flue Diameter (Ø)	mm	60/100	60/100
NOx Emission Class (EN 15502-1+A1)	-	6	6
G 20 Natural Gas, G 31 LP			

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	8	10	11,5
Maximum Heat Discharge for Heating (80°C / 60°C)	kW	34,1	43,5	54,2	63,6
Minimum Heat Output for Heating (80°C / 60°C)	kW	6,7	7,4	9,6	10,8
Maximum Heat Output for Heating (50°C / 30°C)	kW	36,7	45,7	56,2	67,9
Minimum Heat Output for Heating (50°C / 30°C)	kW	7,2	7,7	10,2	11,4
Maximum Domestic Water Thermal Capacity (when external hot water storage tank is used)	kW	35,2	45,6	56,1	66,1
Thermal Efficiency					
Efficiency @ Pmaks. (80°C / 60°C)	%	97,2%	97,3%	97,5%	97,4%
Efficiency @ Pmin. (80°C / 60°C)	%	98,1%	98,2%	98,3%	98,4%
Efficiency @ Pmaks. (50°C / 30°C)	%	105%	105%	105%	105,7%
Efficiency @ Pmin. (50°C / 30°C)	%	107%	107%	107%	107,2%
Efficiency @ 30% (30°C)	%	109%	109%	109%	109%
Domestic Water Circuit					
Temperature Setting Range with External Hot Water Storage Tank	°C	10-65	10-65	10-65	10-65
Heating Circuit					
Maximum Heating Water Temperature	°C	85	85	85	85
Maximum Heating Water Pressure	bar	3	3	3	3
Minimum Heating Water Pressure	bar	0,8	0,8	0,8	0,8
Gas Properties					
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
Combustion Properties					
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 Characteristics					
Power Supply	V / Hz	230/50	230/50	230/50	230/50
Protection Class	IP	X4D	X4D	X4D	X4D
Installation Connection Properties					
Gas Connection Pipe Diameter	inch	3/4"	3/4"	3/4"	3/4"
Heating Circuit Inlet and Outlet Piping Diameter	inch	3/4"	3/4"	1"	1"
General Features					
Net Weight	kg	47	51	55	58
Flue Diameter (Ø)	mm	60/100	60/100	80/125	80/125
NOx Emission Class (EN 15502-1+A1)	-	6	6	6	6

G 20 Natural Gas, G 31 LP

FLOW DIAGRAMS

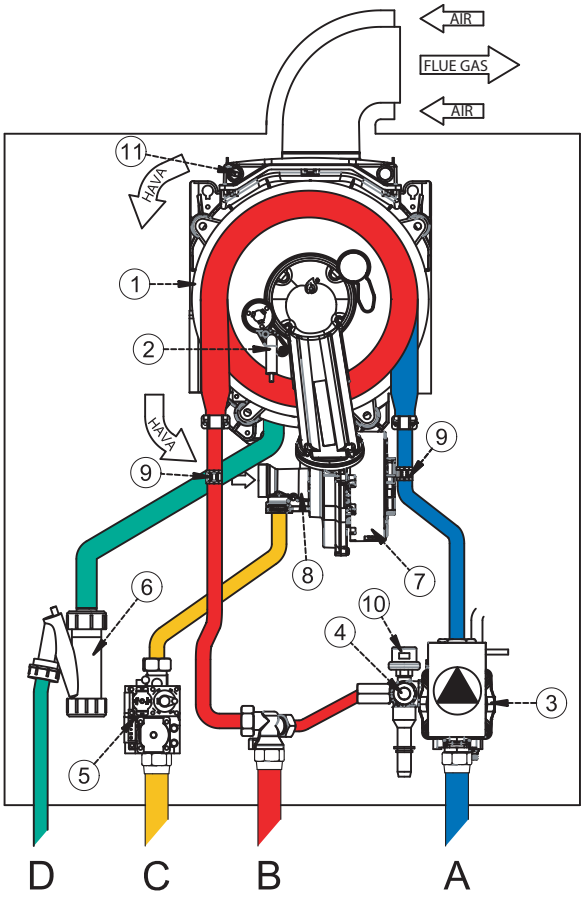
WT-S ONE 35 - 45 OH

CONNECTIONS

A - Boiler Inlet
B - Boiler Outlet
C - Gas Inlet
D - Condensate Outlet

MAIN PARTS

1 - Stainless Steel Heat Exchanger
2 - Ignition and Ionization Electrode
3 - Pump with Automatic Air Purger
4 - Safety Valve
5 - Gas Valve
6 - Condensate Trap
7 - Modulating Fan
8 - Venturi / Mixer
9 - Heating Water Temperature Sensor
10 - Pressure Sensor
11 - Flue Gas Sensor



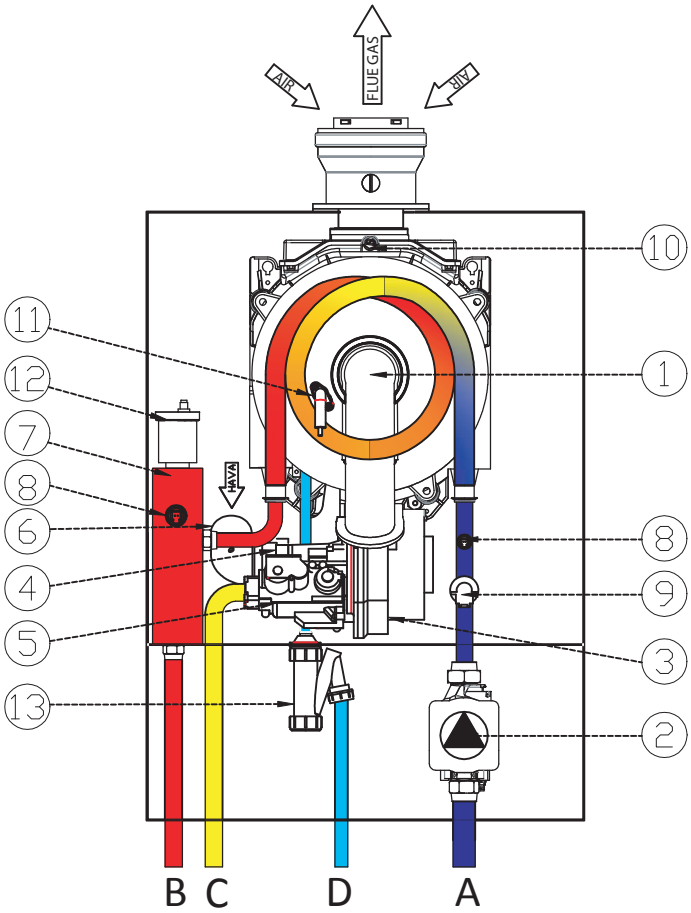
WT-S ONE 55-65 OH

CONNECTIONS

A - Boiler Inlet
B - Boiler Outlet
C - Gas Inlet
D - Condensate Outlet

MAIN PARTS

1 - Stainless Steel Heat Exchanger
2 - Circulation Pump
3 - Modulating Fan
4 - Venturi / Mixer
5 - Gas Valve
6 - Silencer
7 - Collector
8 - Inlet / Outlet Temperature Sensor
9 - Pressure Sensor
10 - Flue Gas Sensor
11 - Ignition and Ionization Electrode
12 - Air Purger
13 - Condensate Trap



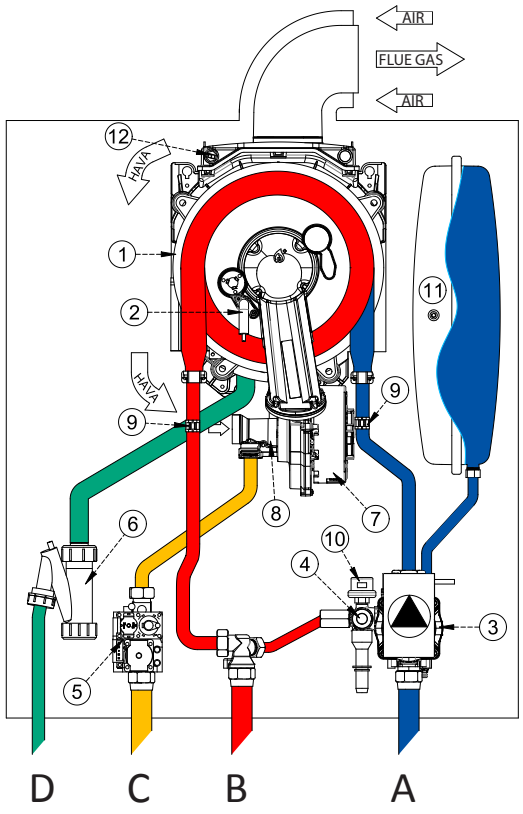
WT-S ONE 35 - 45 OH +EX

CONNECTIONS

A - Boiler Inlet
B - Boiler Outlet
C - Gas Inlet
D - Condensate Outlet

MAIN PARTS

1 - Stainless Steel Heat Exchanger
2 - Ignition and Ionization Electrode
3 - Pump with Automatic Air Purger
4 - Safety Valve
5 - Gas Valve
6 - Condensate Trap
7 - Modulating Fan
8 - Venturi / Mixer
9 - Heating Water Temperature Sensor
10 - Pressure Sensor
11 - Expansion Tank
12 - Flue Gas Sensor



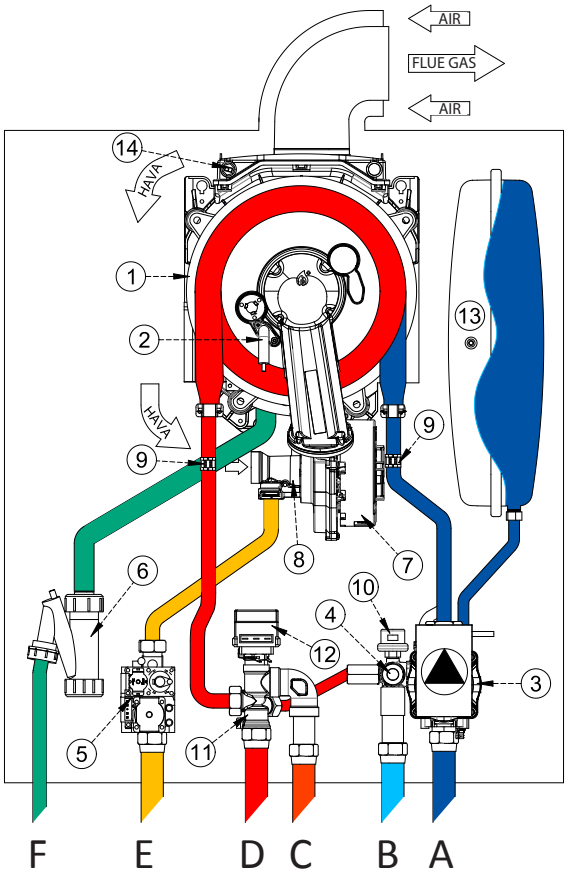
WT-S ONE 35 - 45 BS

CONNECTIONS

A - Boiler Inlet
B - Domestic Water Return
C - Domestic Water Feed
D - Boiler Outlet
E - Gas Inlet
F - Condensate Discharge

MAIN PARTS

1 - Stainless Steel Heat Exchanger
2 - Ignition and Ionization Electrode
3 - Pump with Automatic Air Purger
4 - Safety Valve
5 - Gas Valve
6 - Condensate Trap
7 - Modulating Fan
8 - Venturi / Mixer
9 - Heating Water Temperature Sensor
10 - Pressure Sensor
11 - 3-way Valve
12 - 3-way Valve Servomotor
13 - Expansion Tank
14 - Flue Gas Sensor



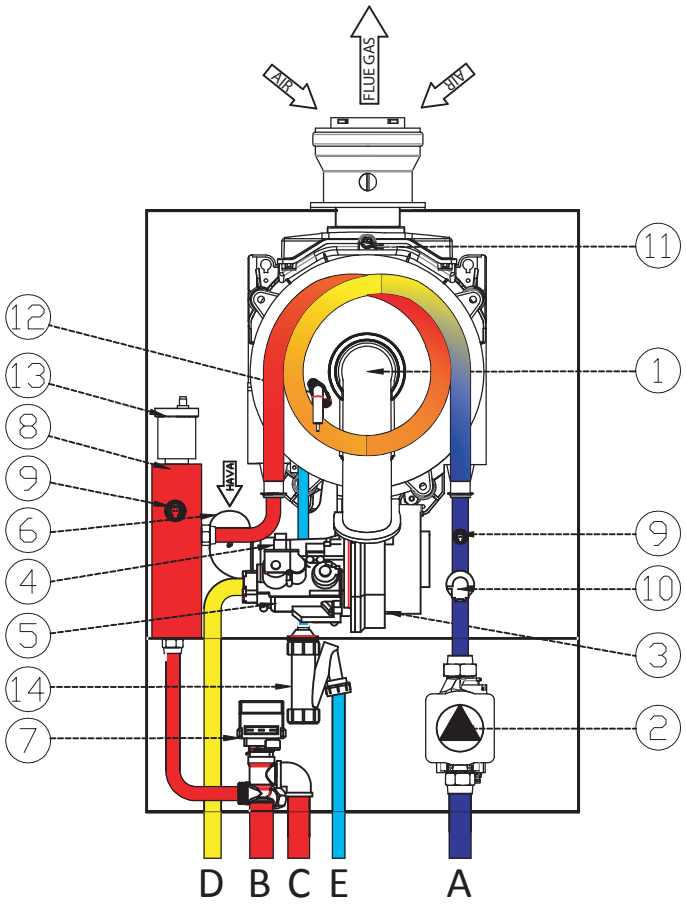
WT-S ONE 55-65 BS

CONNECTIONS

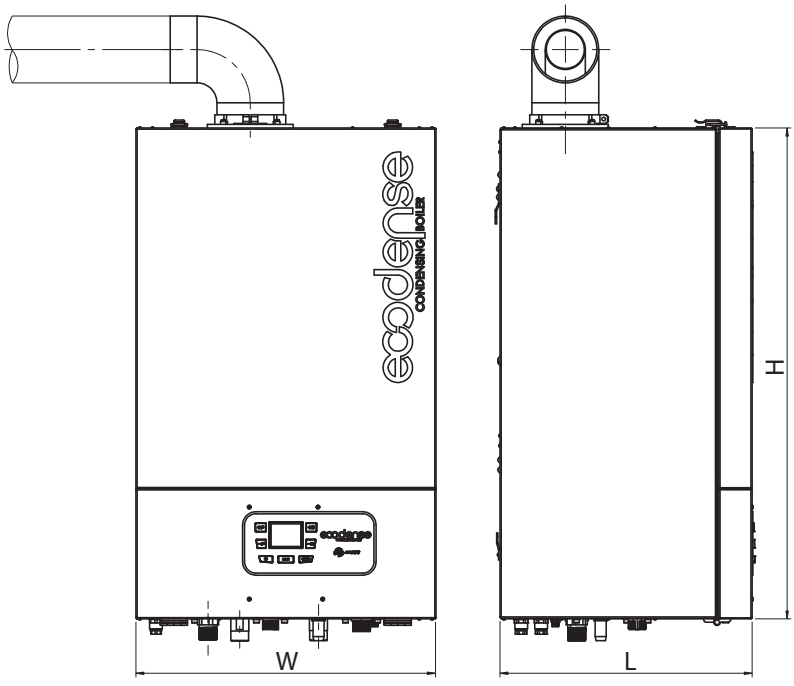
A - Boiler Inlet
B - Boiler Outlet
C - Domestic Water Outlet
D - Gas Inlet
E - Condensate Outlet

MAIN PARTS

1 - Stainless Steel Heat Exchanger
2 - Circulation Pump
3 - Fan
4 - Venturi / Mixer
5 - Gas Valve
6 - Silencer
7 - 3-way Valve and Motor
8 - Collector
9 - Inlet / Outlet Temperature Sensor
10 - Pressure Sensor
11 - Flue Gas Sensor
12 - Ignition and Ionization Electrode
13 - Air Purger
14 - Condensate Trap

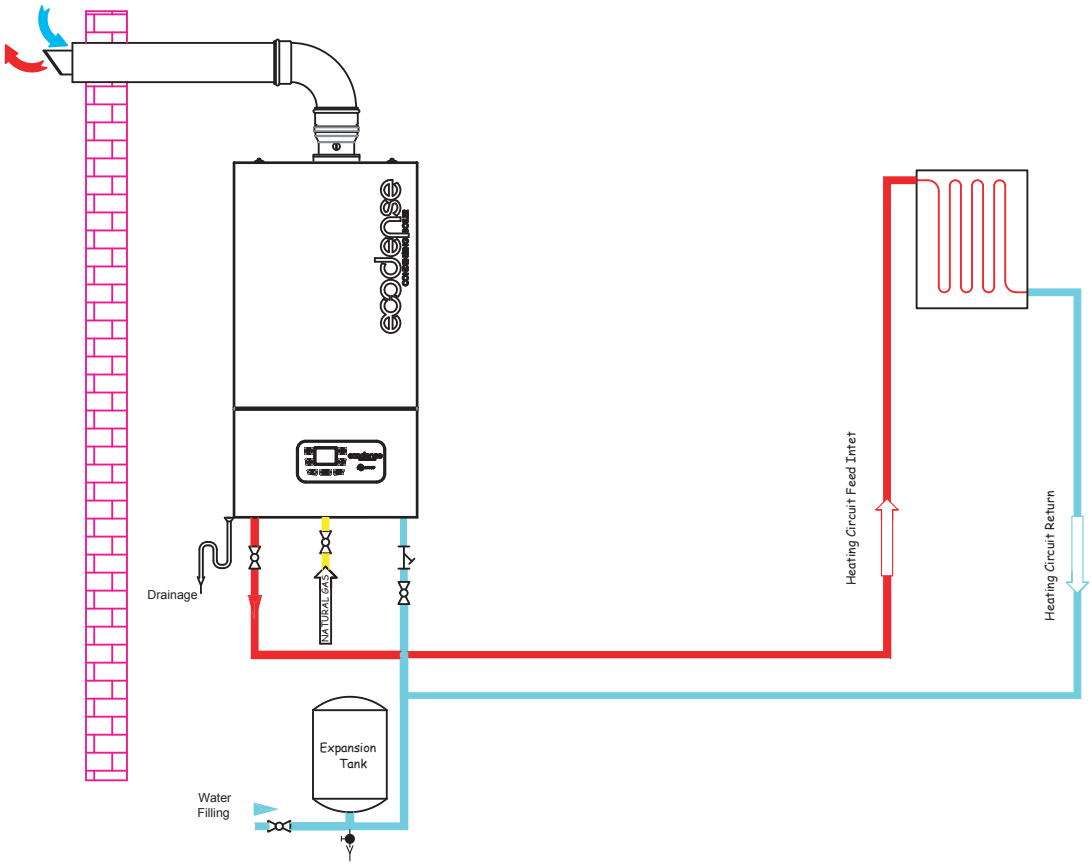


OUTER DIMENSIONS & SIZES TABLE

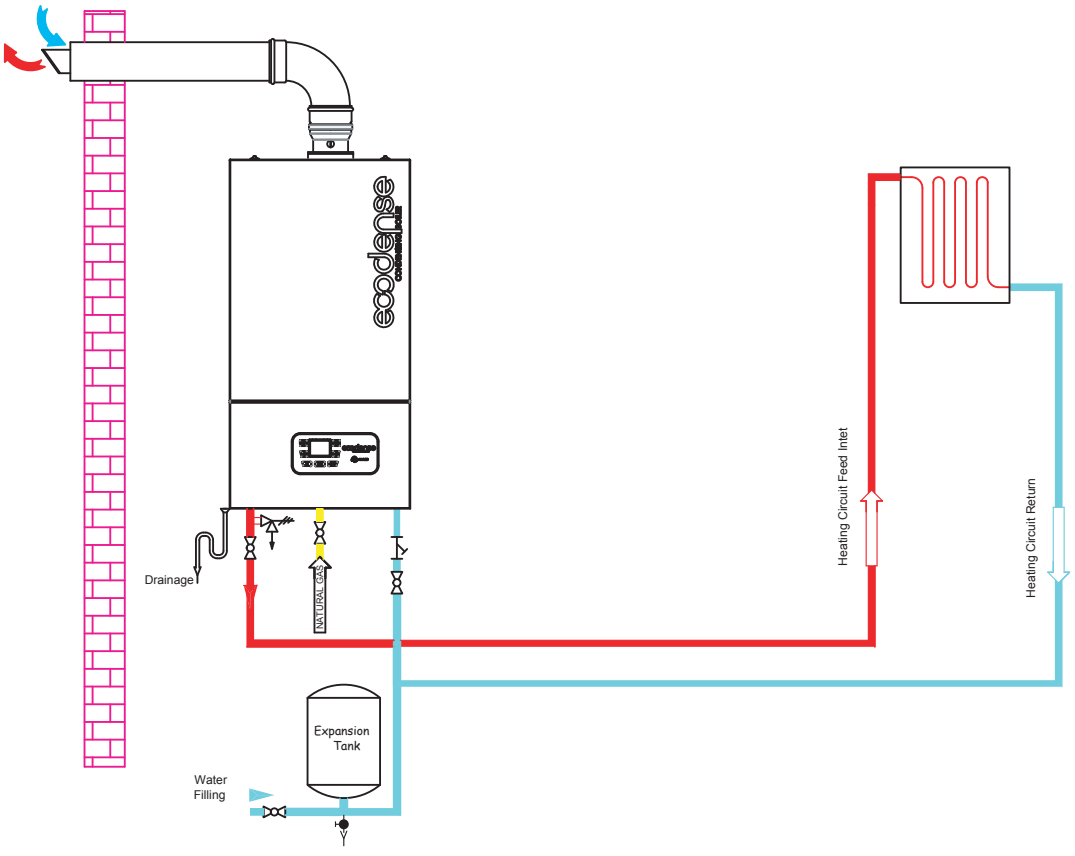


MODEL	W (mm)	H (mm)	L (mm)
WT-S ONE 35 OH	450	378	735
WT - S ONE 35 OH - EX	450	378	735
WT - S ONE 35 BS	450	378	735
WT - S ONE 45 OH	450	378	735
WT - S ONE 45 OH - EX	450	378	735
WT - S ONE 45 BS	450	378	735
WT - S ONE 55 OH	465	443	802
WT - S ONE 55 BS	465	443	802
WT - S ONE 65 OH	465	443	802
WT - S ONE 65 BS	465	443	802

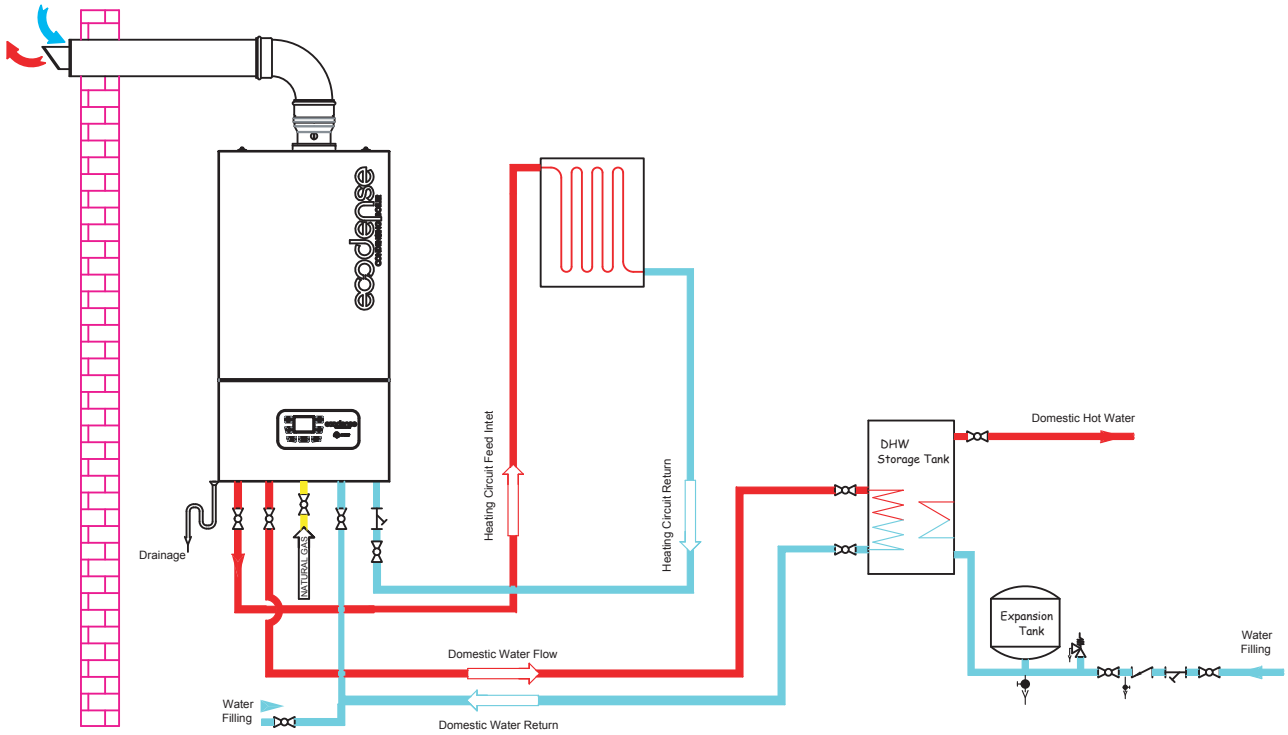
ECODENSE CONDENSATING BOILER WT-S ONE 35-45 - [OH] CIRCUIT DIAGRAM



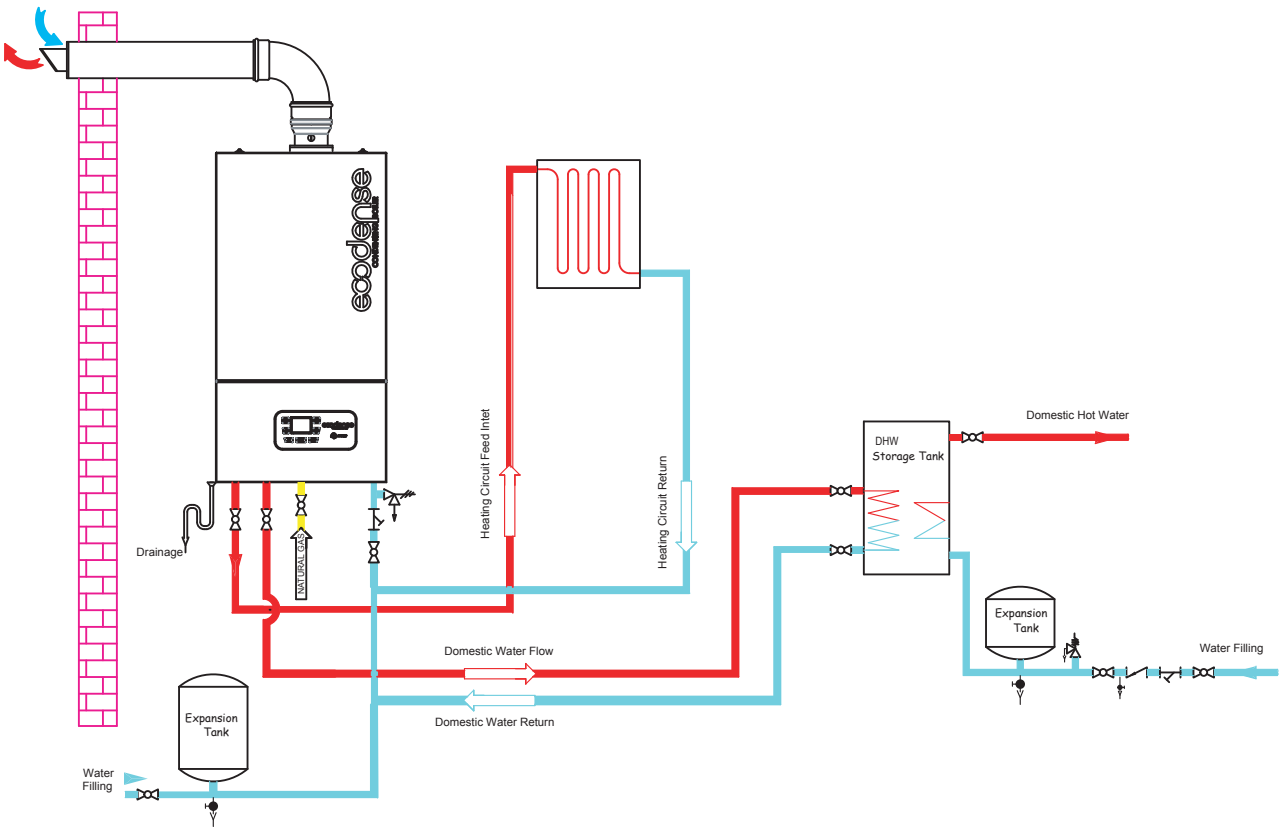
ECODENSE CONDENSATING BOILER WT-S ONE 55-65 - [OH] CIRCUIT DIAGRAM



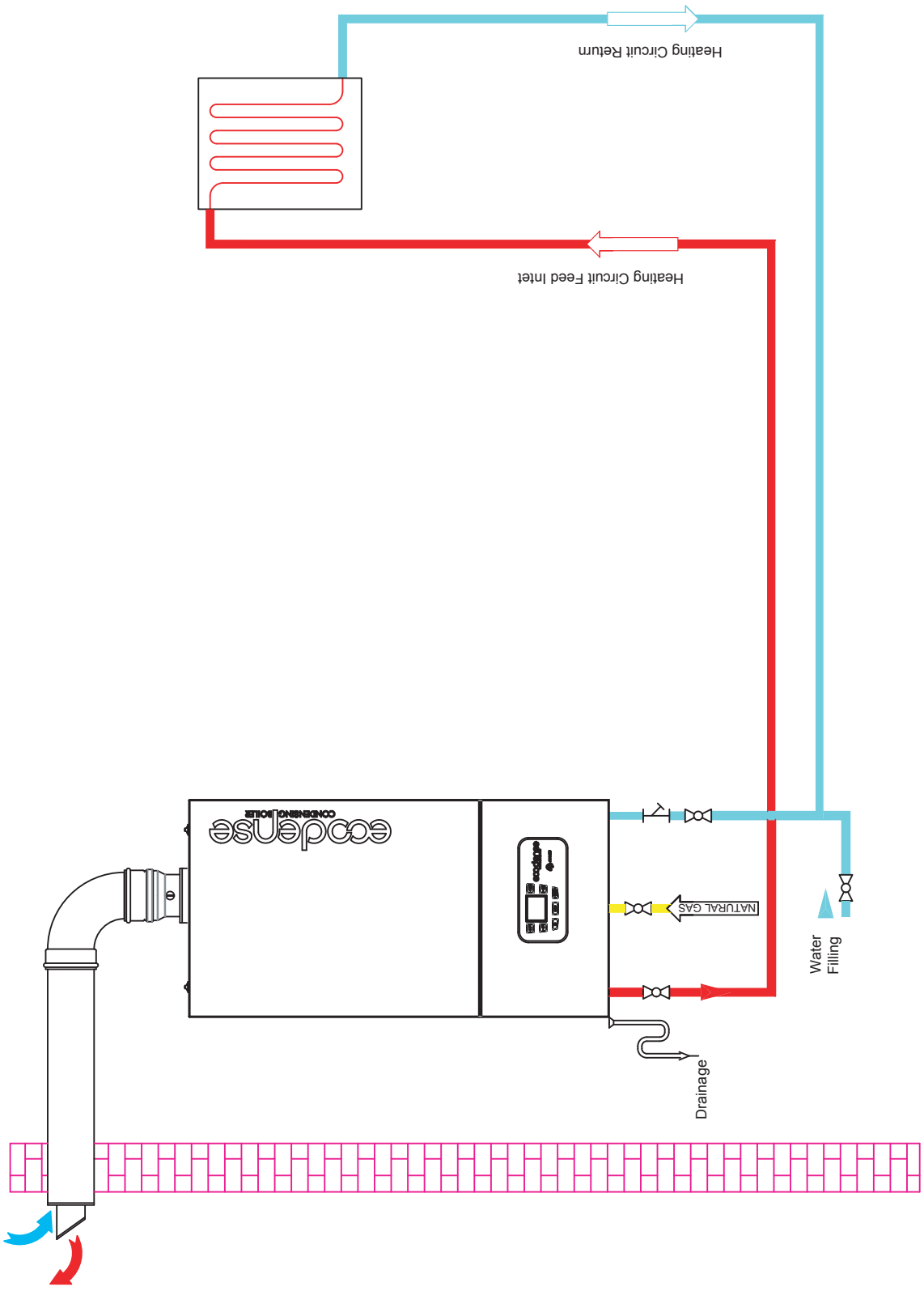
ECODENSE CONDENSATING BOILER WT-S ONE 35-45 [BS] CIRCUIT DIAGRAM



ECODENSE CONDENSATING BOILER WT-S ONE 55-65 [BS] CIRCUIT DIAGRAM



ECODENSE CONDENSATING BOILER WT-S ONE 35-45 - [OH+EX] CIRCUIT DIAGRAM



ECODENSE WT-S DHW SERIES

CONDENSING BOILER WITH INTERNAL HOT WATER STORAGE TANK

new

FEATURES

- Heating and domestic water thermal capacity of 45, 55 ve 65 kW,
- Prolonged high performance and high thermal efficiency with stainless steel Heat Exchanger with increased pipe diameters,
- Optional hot water storage tank capacity options according to the domestic water need,
- Comfort of instant, rapid use of hot water with high thermal efficiency boiler tank,
- High modulation ratio 5:1,
- Operation in low noise levels thanks to its body configuration with high heat and sound isolation,
- Ability to operate with Natural Gas and LPG,
- High efficiency circulation pump with automatic air purger, PWM driver,
- Allows simple control with easy-to-use illuminated LCD panel; and viewing error codes and boiler information from this panel,
- Superior safety features;
  - Flame safety control; ionization,
  - Flue gas temperature control,
  - Heating circuit overheating safety,
  - Frost protection,
  - Low water pressure safety,
- Optional room thermostat connection,
- Optional remote control,
- Environmentally-friendly with lower NOx and CO emission rates.

107% Thermal efficient Stainless steel Heat Exchanger

Modulating primary circuit pump integrated to the boiler

Comfort of rapid and continuous hot water with high thermal efficiency hot water storage tank,

Internal Expansion Tank

AREAS OF USE

House/Residence | Hotels | Hospitals | Schools | Plazas / Shoping Malls | Gyms | Swimming Pools

ECODENSE WT-S DHW SERIES
CONDENSING BOILER WITH INTERNAL HOT WATER STORAGE TANK

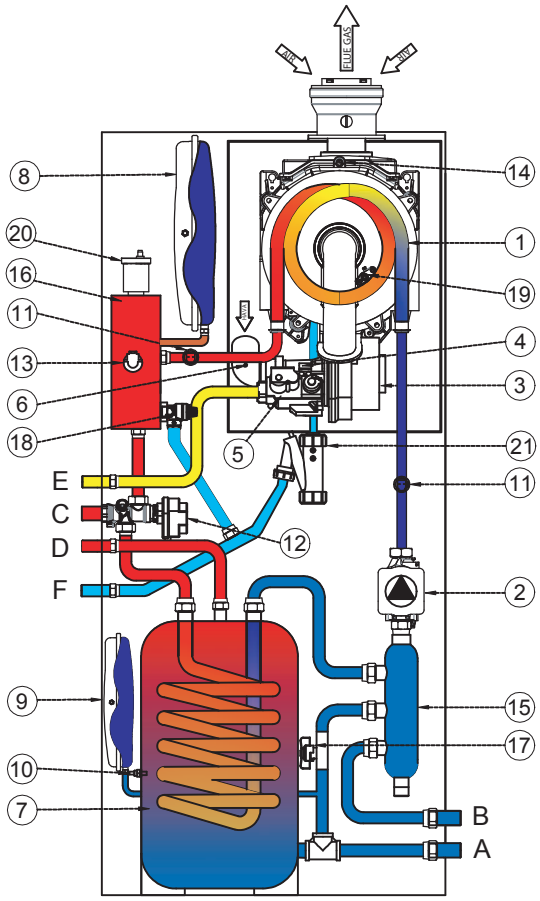
TECHNICAL SPECIFICATIONS	UNIT	WT-S DHW 45 L	WT-S DHW 45 H	WT-S DHW 45 XH	WT-S DHW 55 L	WT-S DHW 55 H	WT-S DHW 55 XH	WT-S DHW 65 L	WT-S DHW 65 H	WT-S DHW 65 XH
Thermal Capacity										
Maximum Heating Capacity	kW	45	45	45	55	55	55	65	65	65
Minimum Heating Capacity	kW	11	11	11	12	12	12	13,5	13,5	13,5
Maximum Heat Discharge for Heating (80°C / 60°C)	kW	42,4	42,4	42,4	53,4	53,4	53,4	64	64	64
Minimum Heat Output for Heating (80°C / 60°C)	kW	7,6	7,6	7,6	9,1	9,1	9,1	10,9	10,9	10,9
Maximum Heat Discharge for Heating (50°C / 30°C)	kW	45,8	45,8	45,8	57,2	57,2	57,2	68,2	68,2	68,2
Minimum Heat Load (50°C / 30°C)	kW	8,3	8,3	8,3	9,9	9,9	9,9	11,8	11,8	11,8
Maximum Domestic Water Capacity	kW	44,2	44,4	44,8	54,1	54,5	54,7	64,2	64,6	64,8
Thermal Efficiency										
Efficiency @ Pmax. (80°C / 60°C)	%	97,4%	97,3%	97,7%	97,5%	97,3%	97,7%	97,3%	97,2%	97,2%
Efficiency @ Pmin. (80°C / 60°C)	%	98,5%	98,6%	98,7%	98,8%	99,1%	98,2%	98,6%	98,3%	98,6%
Efficiency @ Pmax. (50°C / 30°C)	%	105,2%	105,3%	105,4%	105,3%	105,2%	105,1%	105,6%	105,3%	105,6%
Efficiency @ Pmin. (50°C / 30°C)	%	107,4%	107,6%	107,2%	107,2%	107,2%	107,2%	107,1%	107,3%	107,4%
Efficiency @ 30% (30°C)	%	108,7%	109,0%	108,2%	108,1%	108,7%	108,5%	108,6%	108,4%	108,7%
Domestic Water Circuit										
Domestic Water Temperature Adjustment Range	°C	10-65	10-65	10-65	10-65	10-65	10-65	10-65	10-65	10-65
Domestic Water Storage Tank Volume	L	60	90	120	60	90	120	60	90	120
Domestic Water Flow Rate in Continuous Use (ΔT=25°C, 20 °C /45 °C)	L / dk	12,1	18,4	24,2	12,2	18,2	24,4	12,3	18,6	24,6
Heating Circuit										
Maximum Operating Temperature	°C	85	85	85	85	85	85	85	85	85
Maximum Operating Pressure	bar	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6
Minimum Operating Pressure	bar	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8
Gas Properties										
Gas Type	-	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31
Gas Inlet Pressure (G20)	mbar	20	20	20	20	20	20	20	20	20
Gas Inlet Pressure (G31)	mbar	37	37	37	37	37	37	37	37	37
Combustion Values										
Maximum Flue Gas Outlet Temperature (50°C / 30°C)	°C	42	42	42	44	44	44	45	45	45
Maximum Flue Gas Outlet Temperature (80°C / 60°C)	°C	65	65	65	65	65	65	65	65	65
NOx Emission Class (EN 15502-1+A1)	-	5	5	5	5	5	5	5	5	5
Electrical Values										
Voltage & Frequency	V / Hz	230/50	230/50	230/50	230/50	230/50	230/50	230/50	230/50	230/50
Energy Consumption	W	190	190	190	210	210	210	300	300	300
Hydraulic Circuit Properties										
Gas Connection	inch	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Heating Circuit Inlet and Outlet Piping Diameter	inch	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
Domestic Water Circuit Inlet and Outlet Piping Diameter	inch	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
General Features										
Net (Dry) Weight	kg	95	110	125	100	115	130	105	120	135
Flue Diameter (Ø)	mm	80/125	80/125	80/125	80/125	80/125	80/125	80/125	80/125	80/125

G 20 Natural Gas, G 31 LPG

FLOW DIAGRAM

CONNECTIONS

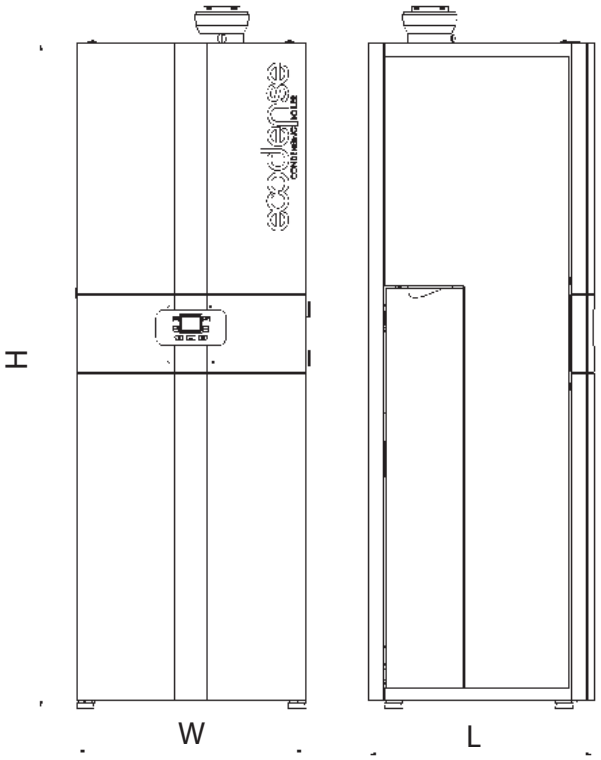
A - Domestic Water Inlet
B - Boiler Inlet
C - Boiler Outlet
D - Domestic Water Outlet
E - Gas Inlet
F - Condensate Outlet



MAIN PARTS

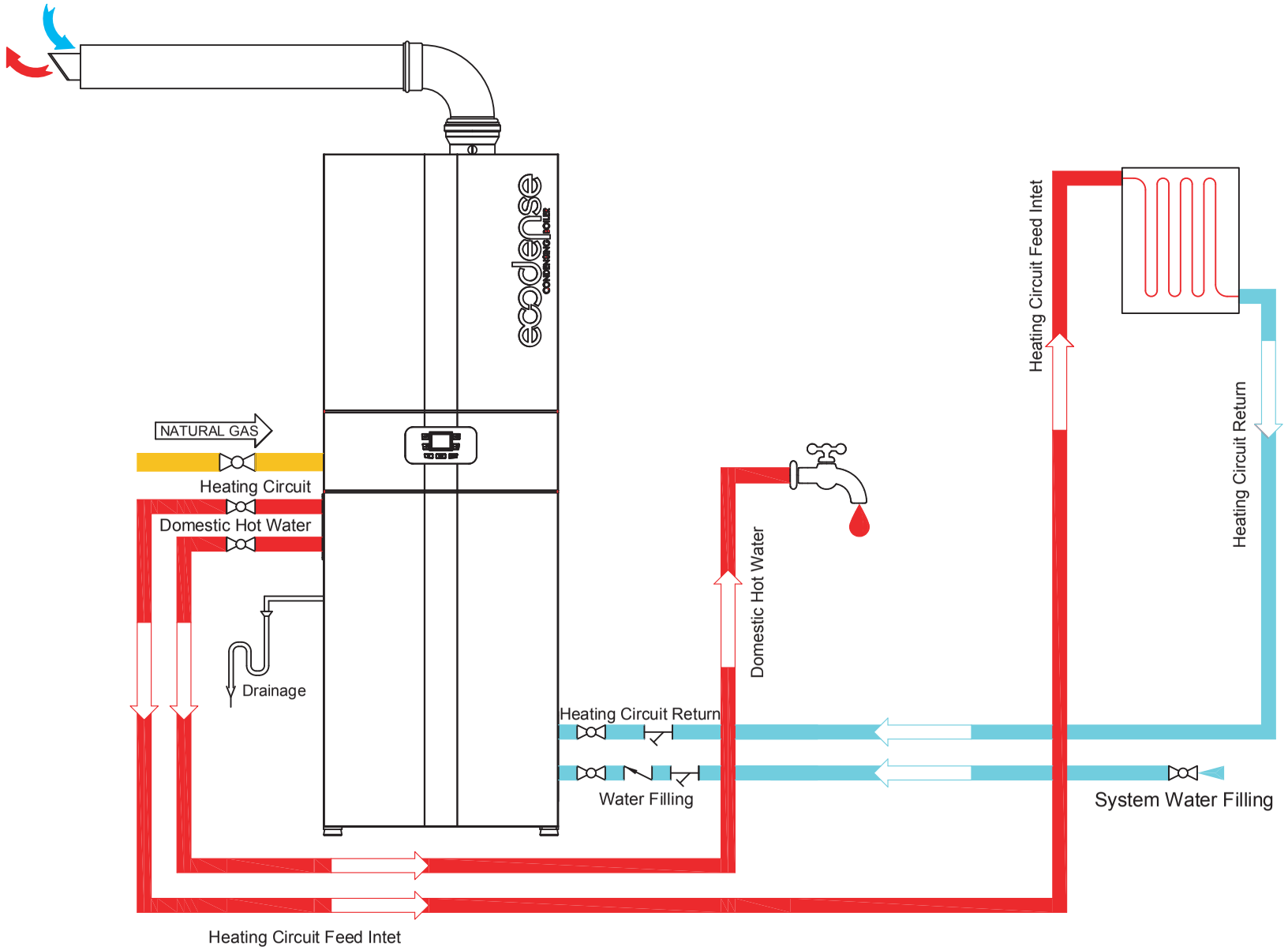
1 - Stainless Steel Heat Exchanger
2 - Circulation Pump
3 - Fan
4 - Venturi / Mixer
5 - Gas Valve
6 - Silencer
7 - Hot Water Storage Tank
8 - Heating Water Expansion Tank
9 - Domestic Water Expansion Tank
10 - Domestic Water Temperature Sensor
11 - Inlet / Outlet Temperature Sensor
12 - 3-way Valve and Motor
13 - Pressure Sensor
14 - Flue Gas Sensor
15 - Cold Water Collector
16 - Hot Water Collector
17 - Water Filling Tap
18 - Safety Valve
19 - Ignition / Ionization Electrode
20 - Air Purger
21 - Condensate Trap

OUTER DIMENSIONS & SIZES TABLE



MODEL	W (mm)	H (mm)	L (mm)	Boiler Tank Volume (L)
WT-S DHW 45 L	575	1435	565	60
WT-S DHW 45 H	575	1665	565	90
WT-S DHW 45 XH	575	1935	565	120
WT-S DHW 55 L	575	1435	565	60
WT-S DHW 55 H	575	1665	565	90
WT-S DHW 55 XH	575	1935	565	120
WT-S DHW 65 L	575	1435	565	60
WT-S DHW 65 H	575	1665	565	90
WT-S DHW 65 XH	575	1935	565	120

CIRCUIT DIAGRAM OF ECODENSE CONDENSING BOILER WT-S+DHW WITH INTERNAL HOT WATER STORAGE TANK



FTC-X SERIES

FLOOR TYPE CONDENSING BOILER

new

FEATURES

- High thermal efficiency with Premix Condensing technology and micro-flame metal fiber coated steel burner,
- Aluminum silicate alloy cast casing Heat Exchanger that provides high operating efficiency with high heat transfer,
- A wide range of capacity (200, 270, 340, 410, 480, 550, 680 and 760 kW) in individual boilers and up to 12,160 kW in Cascade systems,
- High modulation ratio 5:1,
- Allows cascade connection up to total 16 boilers, including 1 master and 15 slave boilers,
- Easy control with illuminated, easy-to-use LCD panel,
- Allows programming with daily and weekly operation schedule,
- Allows seasonal heating program during summer and winter times,
- Ability to operate with Natural Gas and LPG,
- Provides space advantage in boiler room planning and conversions with its compact structure,
- Allows operation in lower sound volumes,
- Environmentally-friendly with lower NOx and CO emission rates.

107% Thermal efficient, Al-Si-Mg-alloy casting Heat Exchanger

Allows cascade up to 16 boilers

High thermal efficiency with premix burner

AREAS OF USE

House/Residence | Hotels | Hospitals | Schools | Plazas / Shoping Malls | Gyms | Swimming Pools

ECODENSE FTC-X SERIES
FLOOR TYPE CONDENSING BOILER

TECHNICAL SPECIFICATIONS	UNIT	FTC-X 200	FTC-X 270	FTC-X 340	FTC-X 410	FTC-X 480	FTC-X 550	FTC-X 680	FTC-X 760
Thermal Capacity									
Maximum Heating Capacity	kW	200	270	340	410	480	550	680	760
Minimum Heating Capacity	kW	30	35	45	55	65	75	90	105
Maximum Heat Discharge for Heating (80°C / 60°C)	kW	184	258	321	390	456	522	579	697,2
Minimum Heat Output for Heating (80°C / 60°C)	kW	28	36	44	53	60	72	80	96
Maximum Heat Output for Heating (50°C / 30°C)	kW	200	269	339	408	477	542	662	770,2
Minimum Heat Output for Heating (50°C / 30°C)	kW	32	40	49	58	68	79	97	112
Thermal Efficiency									
Efficiency @ Pmaks. (80°C / 60°C)	%	98	98	98	98	98	98	98	98
Efficiency @ Pmin. (80°C / 60°C)	%	98,5	98,5	98,5	98,5	98,5	98,5	98,6	98,8
Efficiency @ Pmaks. (50°C / 30°C)	%	104	104	104	104,5	104,5	104,5	104,7	105
Efficiency @ Pmin. (50°C / 30°C)	%	107	107	107	107	107	107	107,1	107,8
Efficiency @ 30% (30°C)	%	107,4	107,5	107,4	107,3	107,2	107,7	107,9	108,2
Domestic Water Circuit									
Temperature Setting Range with External Hot Water Storage Tank	°C	10-65	10-65	10-65	10-65	10-65	10-65	10-65	10-65
Heating Circuit									
Maximum Heating Temperature	°C	85	85	85	85	85	85	85	85
Water Volume	L	18,67	22,96	26,42	32,64	36,9	41	48,6	53,3
Maximum Heating Water Pressure	bar	6	6	6	6	6	6	6	6
Minimum Heating Water Pressure	bar	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8
Gas Properties									
Gas Type	-	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31
Gas Inlet Pressure (G20)	mbar	20	20	20	20	20	20	20	20
Gas Inlet Pressure (G31)	mbar	37	37	37	37	37	37	37	37
Combustion Properties									
Flue Gas Temperature	°C	30-80	30-80	30-80	30-80	30-80	30-80	30-80	30-80
Flue Gas Mass Flow	kg/s	0,092	0,118	0,145	0,171	0,198	0,224	0,273	0,3027
NOx Class (EN 15502-1+A1)	-	6	6	6	6	6	6	6	6
Installation Connection Properties									
Condensing Connection Pipe Diameter	Ø	R3/4"	R3/4"	R3/4"	R3/4"	R3/4"	R3/4"	R3/4"	R3/4"
Gas Connection Pipe Diameter	Ø	R 1 1/4"	R 1 1/2"	R 1 1/2"	R 2"	R 2"	R 2"	R 2"	R 2"
Heating Circuit Inlet and Outlet Piping Diameter	Ø	R 2"	R 2"	DN65	DN65	DN65	DN65	DN65	DN65
General Features									
Net Weight	kg	260	270	296	320	350	360	372	490
Flue Diameter (Ø)	mm	160	160	160	200	200	200	200	200

G 20 Natural Gas, G 31 LPG

ECODENSE FTC-X PLUS SERIES
FLOOR TYPE CONDENSING BOILER

TECHNICAL SPECIFICATIONS	UNIT	FTC-X 200 PLUS	FTC-X 270 PLUS	FTC-X 340 PLUS	FTC-X 410 PLUS	FTC-X 480 PLUS	FTC-X 550 PLUS
Thermal Capacity							
Maximum Heating Capacity	kW	230	300	380	450	480	600
Minimum Heating Capacity	kW	30	35	45	55	65	75
Maximum Heat Discharge for Heating (80°C / 60°C)	kW	214	285	356	429	498	570
Minimum Heat Output for Heating (80°C / 60°C)	kW	23	31	39	44	55	62
Maximum Heat Output for Heating (50°C / 30°C)	kW	230	305	380	455	530	605
Minimum Heat Output for Heating (50°C / 30°C)	kW	26	35	43	49	61	69
Thermal Efficiency							
Efficiency @ Pmaks. (80°C / 60°C)	%	98	98	98	98	98	98
Efficiency @ Pmin. (80°C / 60°C)	%	98,6	98,6	98,7	98,7	98,8	98,8
Efficiency @ Pmaks. (50°C / 30°C)	%	104,3	104,3	104,3	104,6	104,7	104,7
Efficiency @ Pmin. (50°C / 30°C)	%	107,1	107,1	107,2	107,2	107,3	107,3
Efficiency @ 30% (30°C)	%	107,4	107,5	107,5	107,5	107,4	107,6
Domestic Water Circuit							
Temperature adjustment range when external domestic water storage tank is used	°C	10-65	10-65	10-65	10-65	10-65	10-65
Heating Circuit							
Maximum Heating Temperature	°C	85	85	85	85	85	85
Water Volume	L	18,67	22,96	26,42	32,64	36,9	41
Maximum Heating Water Pressure	bar	6	6	6	6	6	6
Minimum Heating Water Pressure	bar	0,8	0,8	0,8	0,8	0,8	0,8
Gas Properties							
Gas Type	-	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31
Gas Inlet Pressure (G20)	mbar	20	20	20	20	20	20
Gas Inlet Pressure (G31)	mbar	37	37	37	37	37	37
Combustion Properties							
Flue Gas Temperature	°C	30-80	30-80	30-80	30-80	30-80	30-80
Flue Gas Mass Flow	kg/s	0,092	0,118	0,145	0,171	0,198	0,224
NOx Class (EN 15502-1+A1)	-	6	6	6	6	6	6
Installation Connection Properties							
Condensing Connection Pipe Diameter	Ø	R3/4"	R3/4"	R3/4"	R3/4"	R3/4"	R3/4"
Gas Connection Pipe Diameter	Ø	R 1 1/4"	R 1 1/2"	R 1 1/2"	R 2"	R 2"	R 2"
Heating Circuit Inlet and Outlet Piping Diameter	Ø	R 2"	R 2"	DN65	DN65	DN65	DN65
General Features							
Net Weight	kg	260	270	296	320	350	360
Flue Diameter (Ø)	mm	160	160	160	200	200	200

G 20 Natural Gas, G 31 LPG

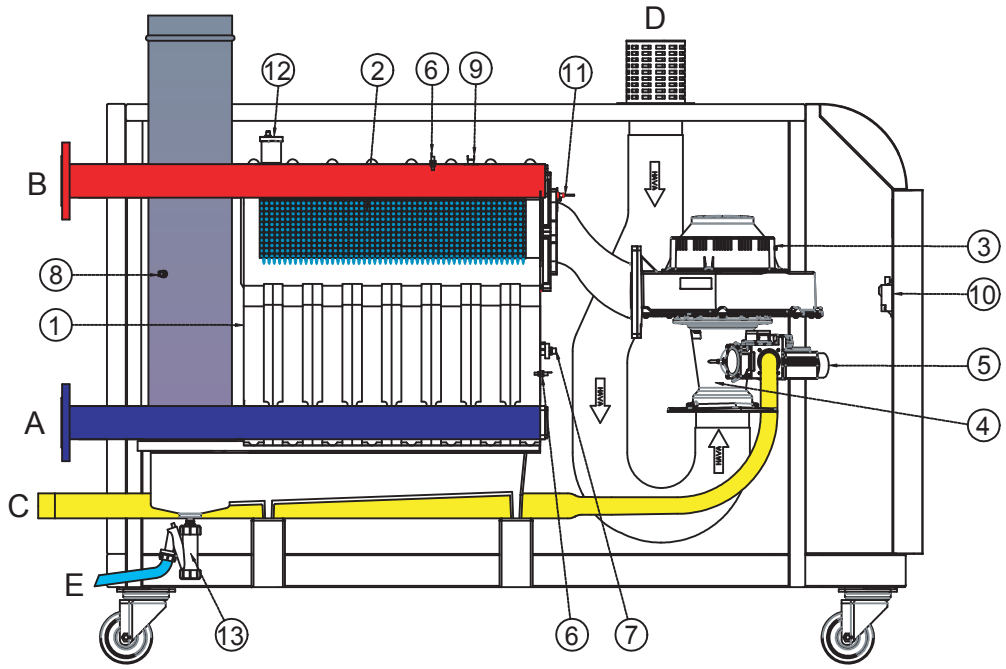
FLOW DIAGRAM

CONNECTIONS

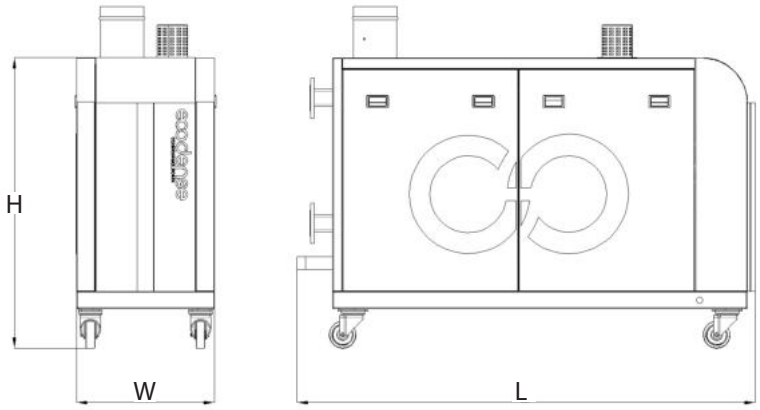
A - Boiler Inlet
B - Boiler Outlet
C - Gas Inlet
D - Air Inlet
E - Condensate Outlet

MAIN PARTS

1 - Al-Si-Mg Casting Heat Exchanger
2 - Premix Flame Tube
3 - Fan
4 - Venturi / Mixer
5 - Gas Valve
6 - Inlet / Outlet Temperature Sensor
7 - Pressure Sensor
8 - Flue Gas Sensor
9 - Limit Thermostat
10 - Ignition Transformer
11 - Ignition and Ionization Electrode
12 - Air Purger
13 - Condensate Trap



OUTER DIMENSIONS & SIZES TABLE



MODEL	W (mm)	H (mm)	L (mm)
FTC-X 200 NG	640	1345	1565
FTC-X 270 NG	640	1345	1565
FTC-X 340 NG	640	1345	1645
FTC-X 410 NG	640	1345	2120
FTC-X 480 NG	640	1345	2120
FTC-X 550 NG	640	1345	2120
FTC-X 680 NG	640	1345	2310
FTC-X 760 NG	640	1345	2405

FTC-MG SERIES

FLOOR TYPE CONDENSING BOILER

new

FEATURES

- High thermal efficiency with Premix Condensing technology and micro-flame metal fiber coated steel burner,
- Al-Mg-Si alloy cast casing Heat Exchanger that provides high operating efficiency with high heat transfer,
- A wide range of capacity (800, 1000, 1200, 1400, 1800, 2200, 2500, 2600 and 3000 kW) in individual boilers and up to 48000 kW in Cascade systems,
- High modulation ratio 5:1,
- Allows cascade connection up to total 16 boilers, including 1 master and 15 slave boilers,
- Easy control with illuminated, easy-to-use LCD panel, Allows programming with daily and weekly operation schedule,
- Allows seasonal heating program during summer and winter times,
- Ability to operate with Natural Gas and LPG,
- Provides space advantage in boiler room planning and conversions with its compact structure,
- Allows operation in lower sound volumes,
- Environmentally-friendly with lower NOx and CO emission rates.

107% Thermal efficient, Al-Si-Mg-alloy casting Heat Exchanger

Allows cascade up to 16 boilers

High thermal efficiency with premix burner

AREAS OF USE

House/Residence | Hotels | Hospitals | Schools | Plazas / Shoping Malls | Gyms | Swimming Pools

ECODENSE FTC-MG SERIES
FLOOR TYPE CONDENSING BOILER

TECHNICAL SPECIFICATIONS	UNIT	FTC MG 5	FTC MG 6	FTC MG 7	FTC MG 8	FTC MG 10	FTC MG 12	FTC MG 13	FTC MG 14	FTC MG 16
Thermal Capacity										
Maximum Heating Capacity	kW	830	1040	1200	1400	1800	2200	2500	2600	3000
Minimum Heating Capacity	kW	95	120	155	200	270	250	275	300	355
Maximum Heat Discharge for Heating (80°C / 60°C)	kW	778	977	1171	1360	1758	2152	2349	2538	2922
Minimum Heat Output for Heating (80°C / 60°C)	kW	88	116	141	165	216	205	256	302	346
Maximum Heat Output for Heating (50°C / 30°C)	kW	832	1041	1246	1458	1869	2305	2512	2703	3118
Minimum Heat Output for Heating (50°C / 30°C)	kW	103	132	157	187	234	253	284	328	371
Thermal Efficiency										
Efficiency @ Pmaks. (80°C / 60°C)	%	98,1	98,2	98	98,1	98,2	98,1	98,3	98,2	98,3
Efficiency @ Pmin. (80°C / 60°C)	%	98,3	98,6	98,5	98,4	98,6	98,7	98,2	98,5	98,5
Efficiency @ Pmaks. (50°C / 30°C)	%	104,1	104,2	104,3	104,4	104,5	104,2	104,1	104,5	104,5
Efficiency @ Pmin. (50°C / 30°C)	%	107	107	107	107	107	107	107	107	107
Efficiency @ 30% (30°C)	%	107,4	107,5	107,4	107,3	107,3	107,3	107,3	107,2	107,7
Domestic Water Circuit										
Temperature Setting Range with External Hot Water Storage Tank	°C	10-65	10-65	10-65	10-65	10-65	10-65	10-66	10-65	10-65
Heating Circuit										
Maximum Heating Temperature	°C	85	85	85	85	85	85	85	85	85
Water Volume	L	54,2	65,9	77,6	89,3	112,7	136,1	159,5	182,9	206,3
Maximum Heating Water Pressure	bar	6	6	6	6	6	6	6	6	6
Minimum Heating Water Pressure	bar	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8
Gas Properties										
Gas Type	-	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31
Gas Inlet Pressure (G20)	mbar	20	20	20	20	20	20	20	20	20
Gas Inlet Pressure (G31)	mbar	37	37	37	37	37	37	37	37	37
Combustion Properties										
Flue Gas Temperature	°C	30-80	30-80	30-80	30-80	30-80	30-80	30-80	30-80	30-80
Flue Gas Mass Flow	kg/s	0,339	0,424	0,511	0,593	0,763	0,933	1,061	1,112	1,271
NOx Class (EN 15502-1+A1)	-	5	5	5	5	5	5	5	5	5
Installation Connection Properties										
Condensing Connection Pipe Diameter	Ø	1"	1"	1 1/4"	1 1/4"	1 1/4"	1 1/2"	1 1/2"	2"	2"
Gas Connection Pipe Diameter	Ø	1 1/2"	1 1/2"	2"	2"	2"	2 1/2"	2 1/2"	2 1/2"	3"
Heating Circuit Inlet and Outlet Piping Diameter	Ø	4"	4"	4"	5"	5"	5"	6"	6"	6"
General Features										
Net (Dry) Weight	kg	585	760	935	1120	1480	1830	2070	2185	2550
Flue Diameter (Ø)	mm	200	200	250	250	315	315	315	315	315

G 20 Natural Gas, G 31 LPG

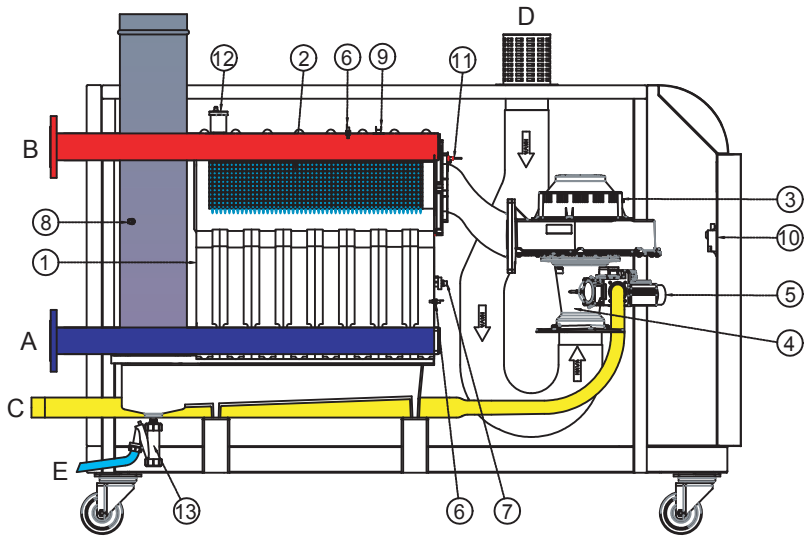
FLOW DIAGRAM

CONNECTIONS

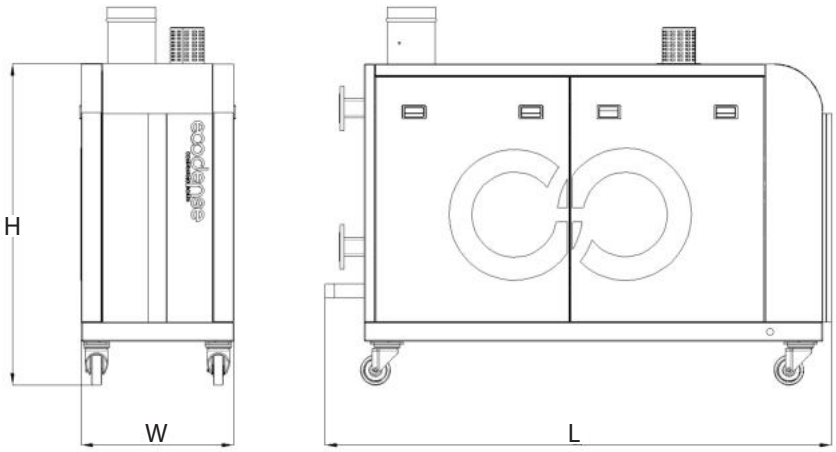
A - Boiler Inlet
B - Boiler Outlet
C - Gas Inlet
D - Air Inlet
E - Condensate Outlet

MAIN PARTS

1 - Al-Si-Mg Casting Heat Exchanger
2 - Premix Flame Tube
3 - Fan
4 - Venturi / Mixer
5 - Gas Valve
6 - Inlet / Outlet Temperature Sensor
7 - Pressure Sensor
8 - Flue Gas Sensor
9 - Limit Thermostat
10 - Ignition Transformer
11 - Ignition and Ionization Electrode
12 - Air Purger
13 - Condensate Trap



OUTER DIMENSIONS & SIZES TABLE



MODEL	W (mm)	H (mm)	L (mm)	Ağırlık (kg)
FTC - MG 5	930	2020	1875	585
FTC - MG 6	930	2020	1995	760
FTC - MG 7	930	2020	2120	935
FTC - MG 8	930	2020	2240	1120
FTC - MG 10	930	2020	2485	1480
FTC - MG 12	930	2020	2735	1830
FTC - MG 14	930	2020	2980	2185
FTC - MG 16	930	2020	3230	2550

FT-S SERIES
FLOOR TYPE CONDENSING BOILER

FEATURES

- Compact design for high thermal capacities in heating water and domestic water applications,
- 5 different thermal capacity options: 315 kW, 400 kW, 530 kW, 800 kW and 1060 kW,
- High thermal efficiency with stainless steel Heat Exchanger,
- Rapid hot water demand in low water capacity,
- Low thermal losses,
- Energy saving through 5:1 modulating operation,
- Daily and weekly operation scheduling,
- Seasonal heat load program during summer and winter times,
- Allows simple control with illuminated, easy-to-use LCD panel and viewing error codes and boiler information from a single panel,
- Ability to operate with Natural Gas and LPG,
- Allows operation in lower sound volumes,
- Environmentally-friendly with low NOx and CO emissions,
- Easy maintenance.

107% Thermal efficient Stainless steel Heat Exchanger

Allows cascade up to 16 boilers

High thermal efficiency with premix burner

AREAS OF USE

House/Residence | Hotels | Hospitals | Schools | Plazas / Shoping Malls | Gyms | Swimming Pools

ECODENSE FT-S SERIES
FLOOR TYPE CONDENSING BOILER

TECHNICAL SPECIFICATIONS	UNIT	FT-S 315	FT-S 530	FT-S 800	FT-S 1060
Thermal Capacity					
Maximum Heating Capacity	kW	315	530	800	1060
Minimum Heating Capacity	kW	65	110	180	215
Maximum Heat Discharge for Heating (80°C / 60°C)	kW	307,8	517,8	781,6	1035,6
Minimum Heat Output for Heating (80°C / 60°C)	kW	68,39	110,2	162,8	203,1
Maximum Heat Output for Heating (50°C / 30°C)	kW	337,7	568,2	860	1140
Minimum Heat Output for Heating (50°C / 30°C)	kW	67,5	116	183	219,1
Useful Efficiency					
Efficiency @ Pmaks. (80°C / 60°C)	%	97,7	97,7	97,7	97,8
Efficiency @ Pmin. (80°C / 60°C)	%	98,5	98,5	98	98,2
Efficiency @ Pmaks. (50°C / 30°C)	%	107,2	107,2	107,5	107,5
Efficiency @ Pmin. (50°C / 30°C)	%	107,4	107,6	107,2	107,1
Efficiency @ 30% (30°C)	%	108,7	109	108,2	108,6
Domestic Water Circuit					
Temperature Setting Range with External Hot Water Storage Tank	°C	10-65	10-65	10-65	10-65
Heating Circuit					
Maximum Operating Temperature	°C	85	85	85	85
Maximum Operating Pressure	bar	11	11	11	11
Minimum Operating Pressure	bar	1	1	1	1
Gas Properties					
Gas Type	-	G20	G20	G20	G20
Gas Inlet Pressure (G20)	mbar	20	20	20	20
Combustion Values					
Max. Flue Outlet Temperature (50°C / 30°C)	°C	45	45	45	45
Max. Flue Outlet Temperature (80°C / 60°C)	°C	70	70	70	70
NOx Emission Class (EN 15502-1+A1)	-	5	5	5	5
Hydraulic Installation Properties					
Gas Connection	inch	1/2"	1/2"	1/2"	1/2"
Heating Circuit Inlet and Outlet Piping Diameter	inch	2 1/2"	2 1/2"	4"	4"
General Features					
Net (Dry) Weight	kg	210	296	526	665
Flue Diameter (Ø)	mm	200	200	300	300
G 20 Natural Gas, G 31 LPG					

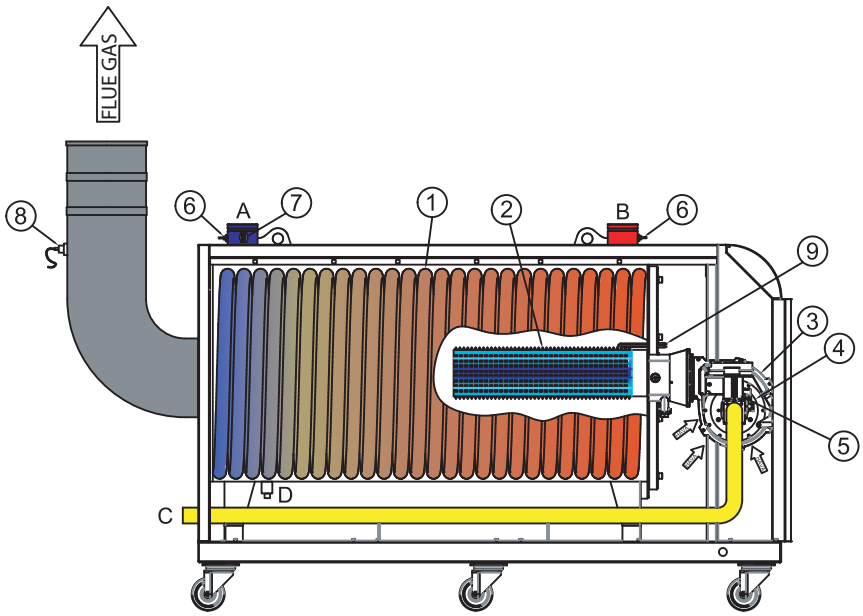
FLOW DIAGRAM

CONNECTIONS

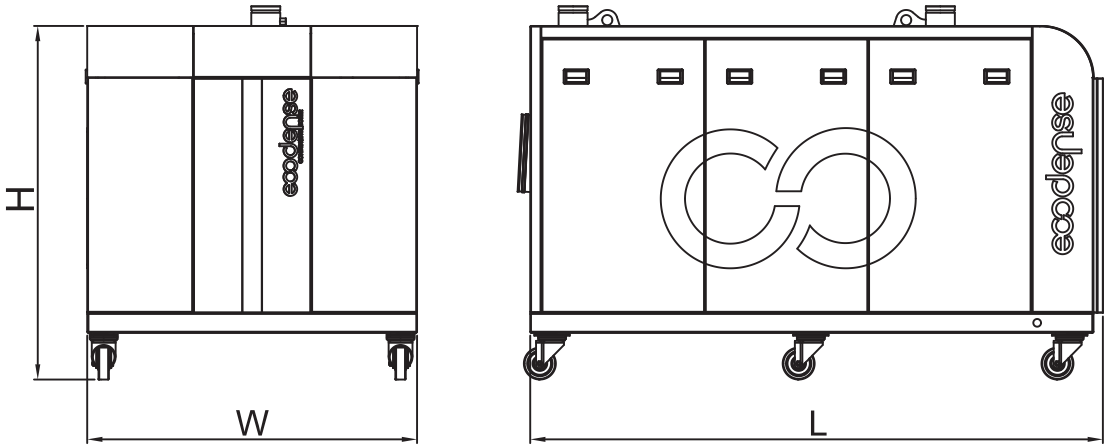
A - Boiler Inlet
B - Boiler Outlet
C - Gas Inlet
D - Air Inlet
E - Condensate Outlet

MAIN PARTS

1 - Stainless Steel Heat Exchanger
2 - Premix Flame Tube
3 - Fan
4 - Venturi / Mixer
5 - Gas Valve
6 - Inlet / Outlet Temperature Sensor
7 - Pressure Sensor
8 - Flue Gas Sensor
9 - Limit Thermostat
10 - Ignition Transformer
11 - Ignition and Ionization Electrode
12 - Air Purger
13 - Condensate Trap

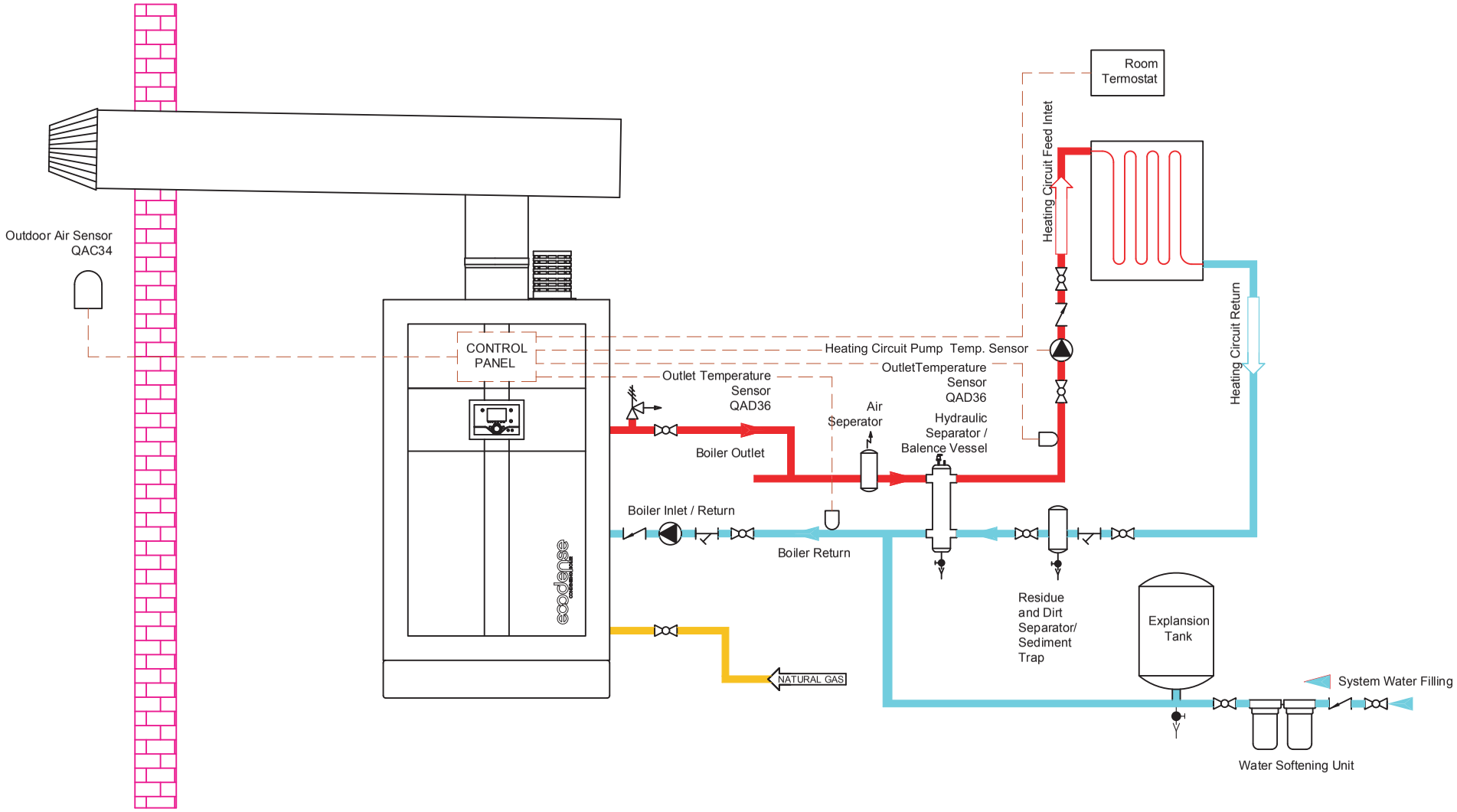


OUTER DIMENSIONS & SIZES TABLE



MODEL	W (mm)	H (mm)	L (mm)
FT-S 315	1000	1100	1250
FT-S 400	1000	1100	1400
FT-S 530	1000	1100	1750
FT-S 800	1300	1400	2000
FT-S 1060	1300	1400	2300

ECODENSE CONDENSING BOILER FTC-X, FTC-MG, FT-S RADIATOR CIRCUIT DIAGRAM



ROOF TOP SERIES
CONDENSING BOILER

FEATURES

ECODENSE Roof Top series condensing boilers are designed as compact solutions for hot water production in many roof top applications such as shopping malls, office buildings, hospitals, hotels. Designed especially for outdoor applications, **ECODENSE** condensing boilers, when used as **CASCADE**, meet high-capacity energy requirements with line-up operation and also expand the life-cycle of boilers by ensuring equal aging in boilers.

- High efficiency with Condensing technology and Premix burner with micro-flame metal fiber coated steel flame tube,
- Energy saving through 5:1 modulating operation,10 different capacity options between 65 kW-300 kW in ECODENSE RT One / Twin series,
- Ability to operate with Natural Gas and LPG,
- Easy hydraulic and gas circuit connections,
- Allows simple control with easy-to-use illuminated LCD panel; and viewing error codes and boiler information from one single panel,
- Allows programming of daily and weekly operation schedule,
- Allows seasonal heating program during summer and winter times,
- Operation in low noise values,
- Environmentally friendly with lower NOx and CO emission rates,
- Easy installation, operation and maintenance,

109% Thermal efficient, aluminum-alloy, spiral fine Heat Exchanger

Modulating primary circuit pump integrated to the boiler

Internal Back Current Damper

Internal balancing vessel, sediment trap and air separator

Internal gas filter and gas regulator

Internal gas detector

Packaged product ready for the system, equipped with installation safety equipment

AREAS OF USE

House/Residence | Hotels | Hospitals | Schools | Plazas / Shoping Malls | Gyms | Swimming Pools

ECODENSE ROOF TOP ROOFTOP SERIES
WALL HUNG TYPE CONDENSING BOILER

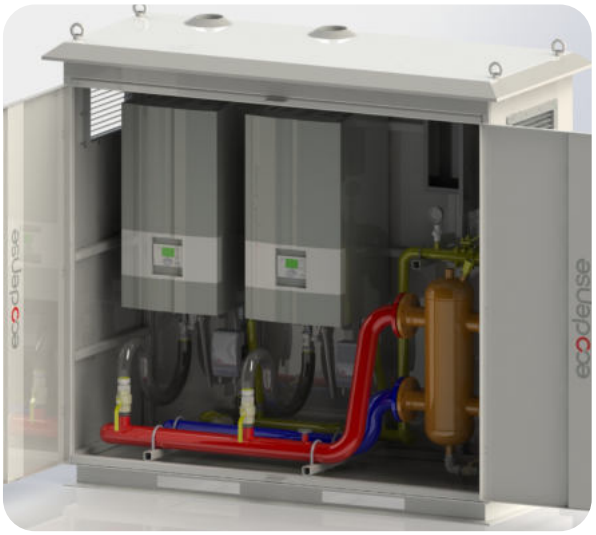
TYPE	CAPACITY	NO OF BOILER	GAS INLET PRESSURE	MAXIMUM OPERATING PRESSURE
	kW		mbar	bar
ECODENSE RT-65 One	65	1	21	6
ECODENSE RT-80 One	80	1	21	6
ECODENSE RT-90 One	90	1	21	6
ECODENSE RT-100 One	100	1	21	6
ECODENSE RT-110 One	110	1	21	6
ECODENSE RT-115 One	115	1	21	6
ECODENSE RT-125 One	125	1	21	6
ECODENSE RT-150 One	150	1	21	6
ECODENSE RT-65 Twin	130	2	21	6
ECODENSE RT-80 Twin	160	2	21	6
ECODENSE RT-90 Twin	180	2	21	6
ECODENSE RT-100 Twin	200	2	21	6
ECODENSE RT-110 Twin	220	2	21	6
ECODENSE RT-115 Twin	230	2	21	6
ECODENSE RT-125 Twin	250	2	21	6
ECODENSE RT-150 Twin	300	2	21	6

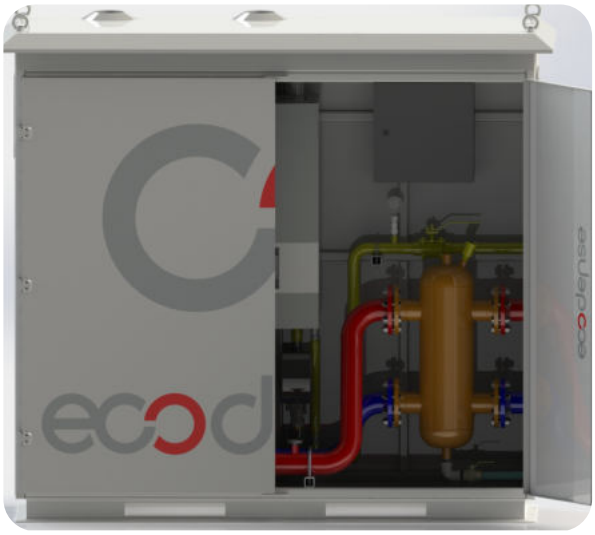
BOILER SAFETY

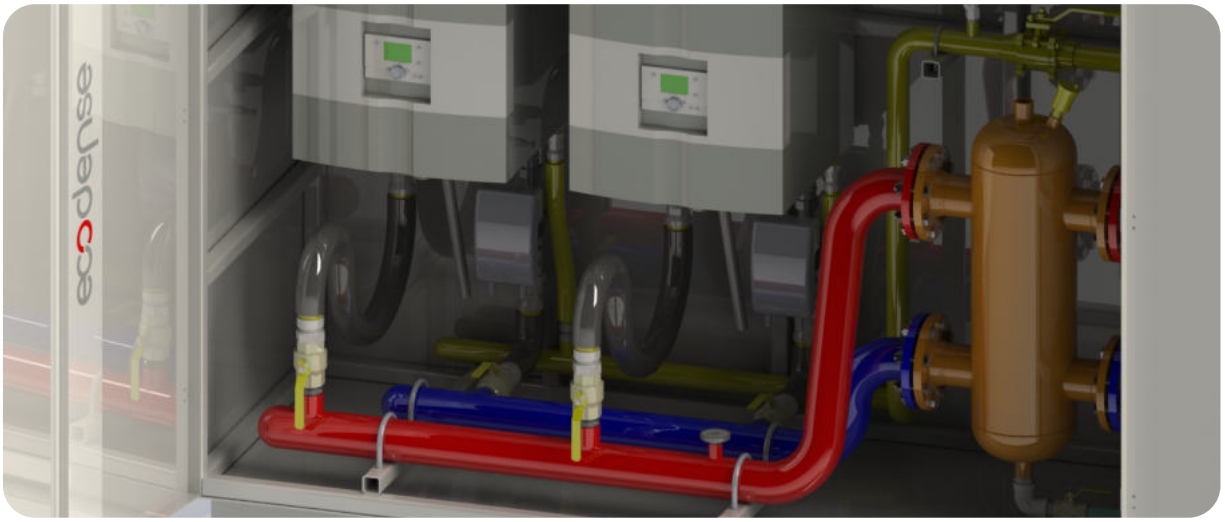
- When outdoor temperature goes below 4°C, the boiler automatically protects itself and prevents freezing.
- The boiler protects itself, when the temperature of flue gas exceeds the set value during operation;
- The boiler protects itself during unexpected high temperatures with combustion space safety thermostat.
- Gas detector for gas leaks inside the unit.

STANDARD EQUIPMENT

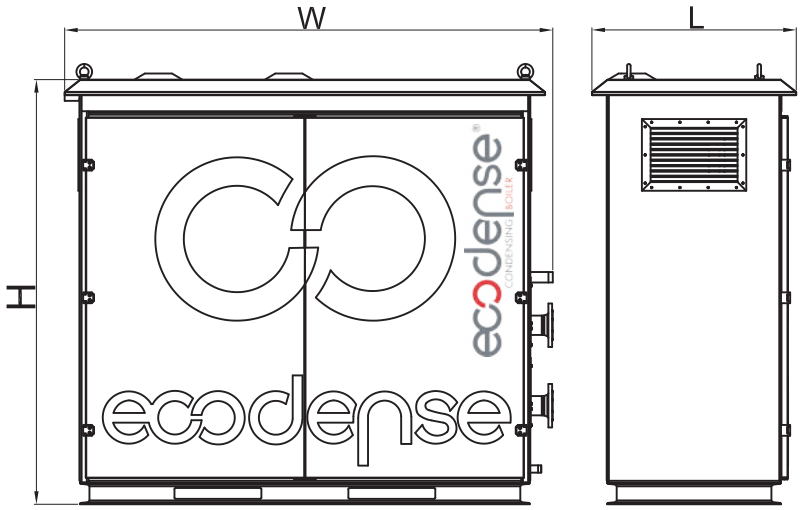
- Circulation pump of primary hydraulic circuit circulating pump,
- Inlet and outlet collectors suitable for total boiler power,
- Check valve at feed line and safety valve at return line,
- Ball valve at feed and return lines of boilers,
- Balancing vessel with sludge, dirt and air separator suitable for total boiler power,
- Gas detector for gas leak control,
- Manometer and ball valve for gas line,
- Hydraulic circuit thermometer,
- Condensate trap for each boiler,
- Ventilation grills for air inlet and outlet,
- Eyebolt and carrying support for easy transport.







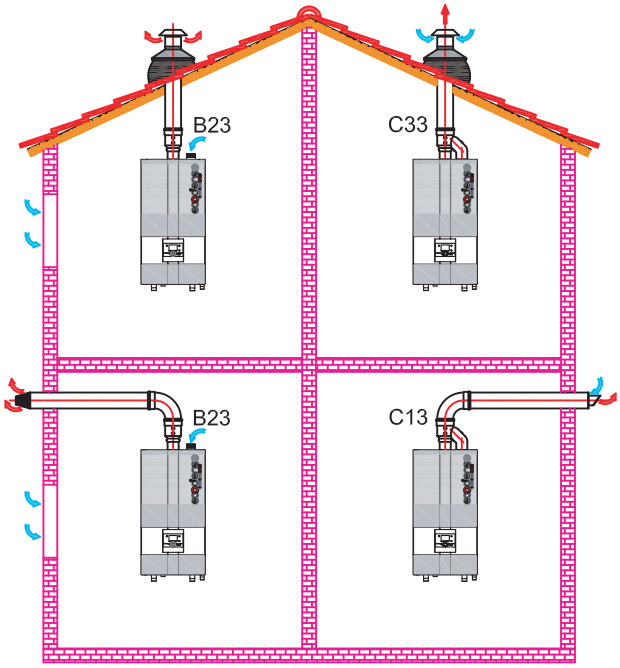
OUTER DIMENSIONS & SIZES TABLE



MODEL	W (mm)	H (mm)	L (mm)
ECODENSE RT-65 One	1960	1500	950
ECODENSE RT-80 One	1960	1500	950
ECODENSE RT-90 One	1960	1500	950
ECODENSE RT-100 One	1960	1500	950
ECODENSE RT-110 One	1960	1500	950
ECODENSE RT-115 One	1960	1500	950
ECODENSE RT-125 One	1960	1500	950
ECODENSE RT-150 One	1960	1500	950
ECODENSE RT-65 Twin	1960	2250	950
ECODENSE RT-80 Twin	1960	2250	950
ECODENSE RT-90 Twin	1960	2250	950
ECODENSE RT-100 Twin	1960	2250	950
ECODENSE RT-110 Twin	1960	2250	950
ECODENSE RT-115 Twin	1960	2250	950
ECODENSE RT-125 Twin	1960	2250	950
ECODENSE RT-150 Twin	1960	2250	950

FLUE APPLICATIONS

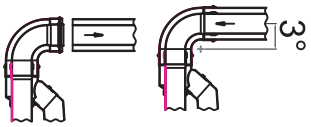
Different solutions are offered for different applications: vertical or horizontal, separate or concentric flue sets. Flue sets in desired lengths may be used with the extension parts that can be added to flues. Please contact our sales team for detailed information.

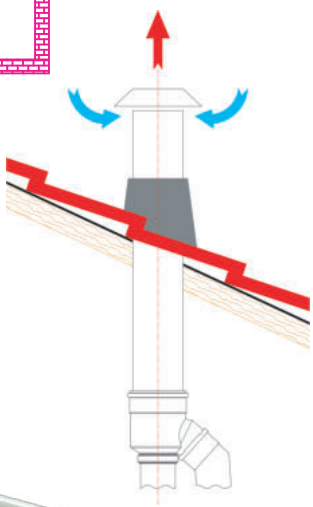


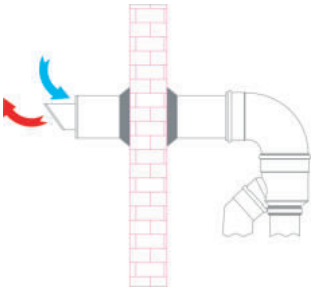
B_{23}= Waste gas discharge is ensured by a flue extended outside from the place of the boiler. Combustion air is absorbed from the place of the boiler.

C_{13}= Waste gas discharge and combustion air absorption is performed by concentric, horizontal flue.

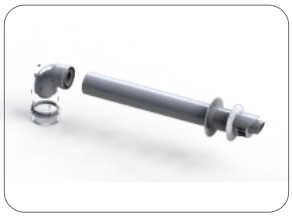
C_{33}= Waste gas discharge and combustion air absorption is performed by concentric, vertical flue.





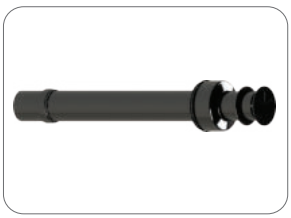


FLUE ACCESSORIES



Horizontal Type Hermetic Flue Set

Dimension	Application	Part Number
Ø 60 /100 mm, L= 500 mm, Ø 60 /100 mm, L=1000 mm, Ø 80 /125 mm, L=1000 mm, Ø 100 /150 mm ,L=500 mm, Ø 100 / 150 mm, L=1000 mm	Horizontal flue set may be used up to 10 m together with flue extension accessories.	**2 078 406 0103** (Ø 60 /100 mm, L = 500 mm) **2 078 406 0104** (Ø 60 /100 mm, L = 1000 mm) **2 078 406 0125** (Ø 80 / 125 mm, L=1000 mm) **2 078 406 0151** (Ø 100 /150 mm, L=500 mm) **2 078 406 0152** (Ø 100 /150 mm, L=500 mm)



Vertical Type Hermetic Flue Set

Dimension	Application	Part Number
Ø 80 / 125 mm	Vertical flue set may be used up to 11 m together with flue extension accessories. ! *For vertical flue set, a vertical flue adapter in the size of Ø80 /125 ! must be mounted to the boiler flue outlet*	**2 078 406 0126**

Waste Gas Discharge Set

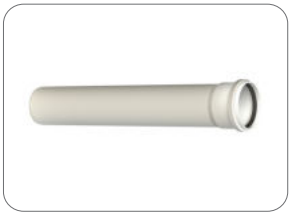
Dimension	Application	Part Number
Ø 80 mm PP Yatay Tip Ø 80 mm PP Dikey Tip	Flue accessories used for flue gas discharge in horizontal flue applications.	**2 078 406 0110** (Horizontal Type) **2 078 409 0500** (Vertical Type)

Hermetic Flue Pipe

Dimension	Application	Part Number
Ø 80 /125 mm L= 500 mm, L= 1000 mm	May be used with horizontal flue set and vertical flue set.	**2 078 407 0050** (L=500 mm) **2 078 407 0100** (L=1000 mm)

Flue Pipe

Dimension	Application	Part Number
Ø 80 mm	May be used with horizontal flue set and vertical flue set.	**2 078 401 00 80**



Flue Connection Pipe

Dimension	Application	Part Number
PP Boru Ø 80 x 500 mm M-F PP Boru Ø 80 x 1000 mm M-F PP Boru Ø 100 x 1000 mm M-F	May be used with horizontal flue set and vertical flue set.	**2 078 409 0500** (Ø 80 x 500 mm M-F) **2 078 409 1000** (Ø 80 x 1000 mm M-F) **2 078 409 1100** (Ø 100 x 1000 mm M-F)

Hermetic Elbow

Dimension	Application	Part Number
90 ° Ø 80 / 125 mm	May be used in horizontal and/or vertical flue applications. ! *Use of each 90 ° elbow requires 1000 mm decrease in vertical/horizontal distance*	**2 078 407 0500**

Hermetic Elbow

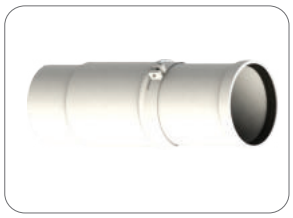
Dimension	Application	Part Number
45 ° Ø 80 / 125 mm	May be used in horizontal and/or vertical flue applications. **Use of each 45 ° elbow requires 500 mm decrease in vertical/horizontal distance*	**2 078 407 0450**

Separate Adaptor

Dimension	Application	Part Number
Ø 80 / 125 mm	The apparatus that must be used in boiler flue outlet and external air inlet when vertical and/or horizontal flue set is used.	**2 078 404 0130**

Flanged Adaptor

Dimension	Application	Part Number
Ø 60 / 80 mm	Auxiliary equipment used in horizontal and/or vertical type hermetic flue accessories.	**2 078 404 0160**



Flue Klappe

Dimension	Application	Part Number
Ø 80, 100 / 100 mm	Angled klappe accessory that must be mounted to each boiler's flue outlet in cascade system. 2 types of boiler connection is available: Ø 80 and Ø 100 mm as boiler flue connection and Ø 100 mm collector connection	**2 078 404 0390** (Ø 80 mm) **2 078 404 0392** (Ø 100 mm)

Additional Flue Set

Dimension	Application	Part Number
(Ø 160 mm)	Additional flue connection accessory used in cascade system.	**2 078 403 1160**

Additional Flue Set

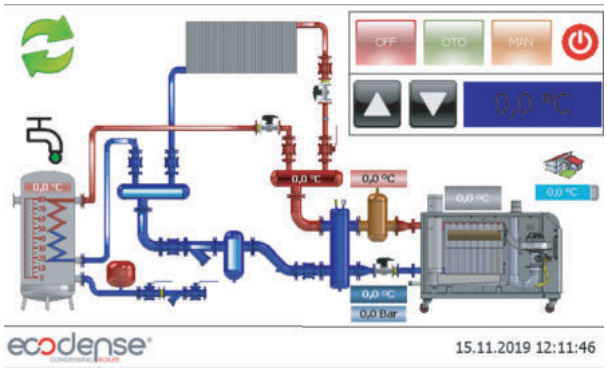
Dimension	Application	Part Number
(Ø 200 mm)	Additional flue connection accessory used in cascade system.	**2 078 403 1200**

Condensate Trap

Dimension	Application	Part Number
(Ø 1/2")	The accessory used for discharging the water occurred as a result of the Condensing of boiler's smoke gases.	**2 078 404 0 135** (Ø 1/2")

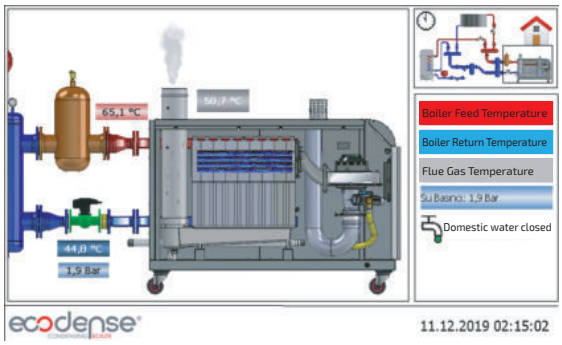
NEW GENERATION BUILDING MANAGEMENT SYSTEM INTEGRATIONS FOR WALL AND FLOOR TYPE CONDENSING BOILERS

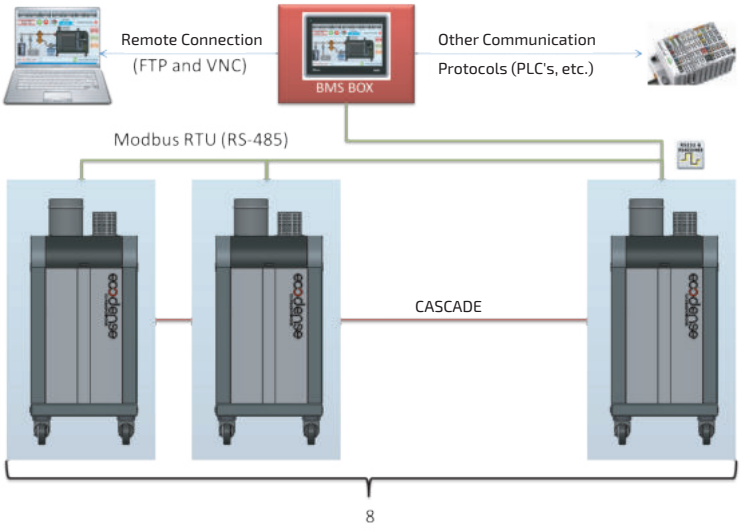
ECOBOX

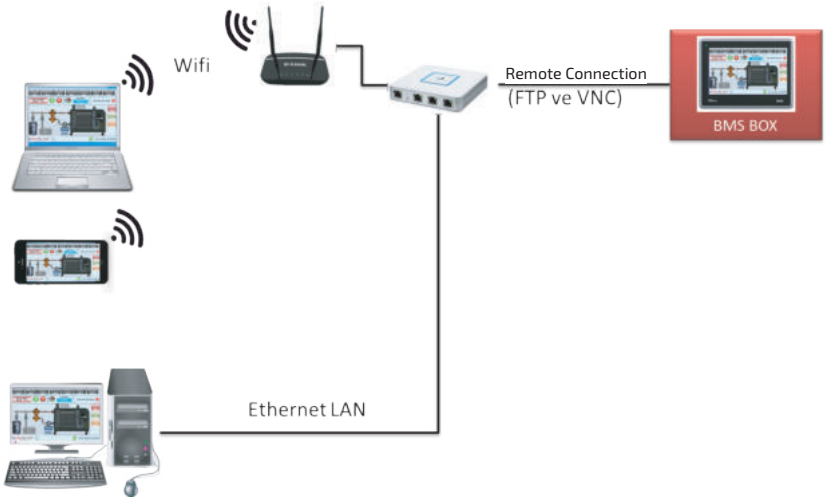


We have developed our ECOBOX product to integrate our condensing boilers in the digitalized world.
You are now able to control via ECOBOX panel the entire process of your floor-type or wall-type boilers from any point within your existing ethernet network.
In addition, it is now easier to switch to many new generation communication protocols used by the industrial automation world.

You can manage more than one condensing boilers, operating either as cascade or independently, by connecting them to ECOBOX system by ethernet system only.







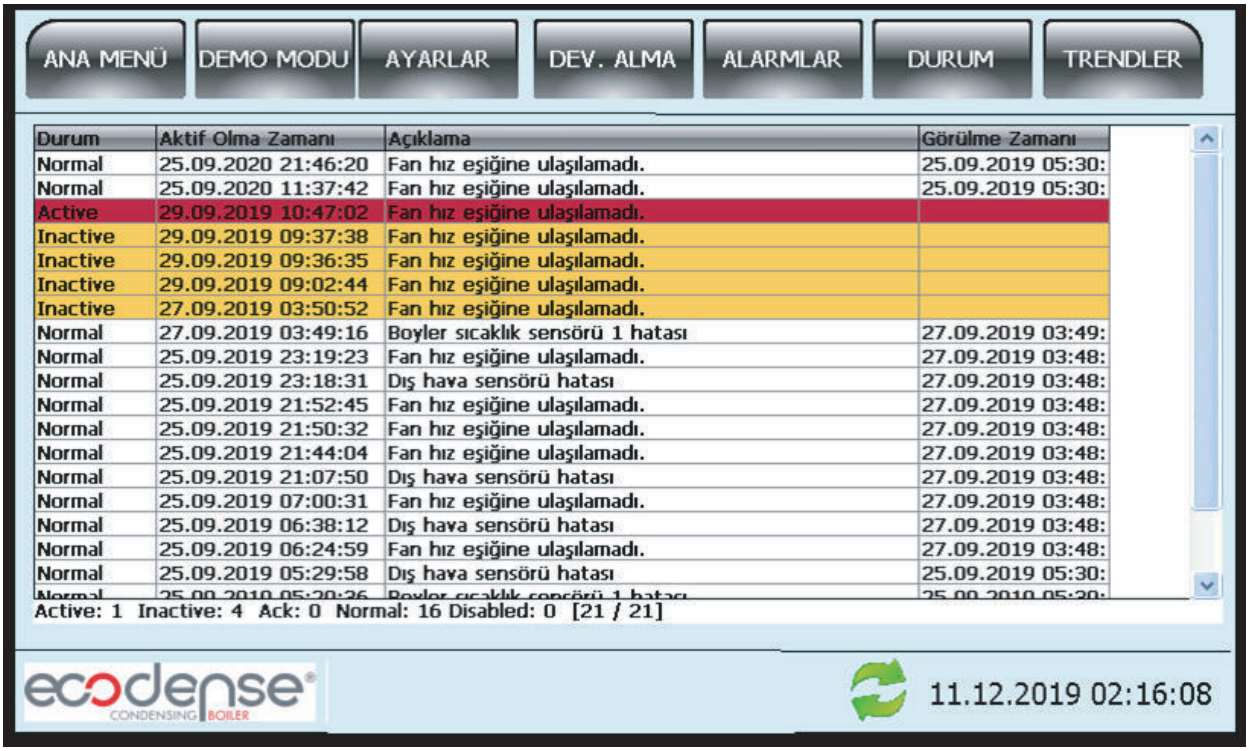
You can access all data through mobile phones, tablets or computers. No need for technical information to create a connection. You can access the system in 3 steps by any remote connection program by writing your IP address and username only. You can also provide the remote connection program from our sales representatives free of charge.

ALMOST LIMITLESS DATA RECORDING

Ecobox continuously monitors your boilers and keeps their records. This way, it ensures much easier failure analyses and maintenance, operation processes. You can examine all related data and understood your condensing boilers' status easily.

- Flue gas temperature,
- Water pressure,
- Outdoor temperature,
- Flow and return temperatures,
- Cascade Return Temperature,
- Cascade Return Temperature,
- Boiler Set Temperature,
- Ionization density,
- Pump Status,
- Operating mode,

It keeps much more data in its memory and enables you access such data any time you want and even download in excel format.



Alarm records menu enables you to access all fault histories of condensing boilers on a daily or hourly basis.

MAGNETIC SEDIMENT TRAP

The substances like dirt, sludge, sediment, sand, etc., present in the installation water may result in failure of boiler and installation components, stress on heat transfer surfaces and decrease in efficiency. In order to prevent this, a sediment trap to be added to the system prevents penetration of such substances into the installation and ensures efficient operation of the system. You can choose the magnetic sediment trap suitable for your boiler capacity (kW) and system capacity (kcal/h) of the boiler you have been using or just purchased.

CAPACITY TABLE

System Capacity (kw)	System Capacity (kcal/h)	dT(°C)	Flow Rate (m3/h)	Compatible product str.	Max.flow rate for product dia. for mag. sed. trap (m3/h)	Magnetic Sediment Trap Product Code	Insulation
35	30100	20	1,51	1	2,11	546306	Optional
45	38700	20	1,94	1	2,11	546306	Optional
55	47300	20	2,37	1 1/4	3,47	546307	Optional
65	55900	20	2,80	1 1/4	3,47	546307	Optional
90	77400	20	3,87	1 1/2	5,42	546308	Optional
115	98900	20	4,95	1 1/2	5,42	546308	Optional
130	111800	20	5,59	2"/DN50 (flanged)	8,20/8,47	546309/546650	Optional/Insulated
170	146200	20	7,31	2"/DN50 (flanged)	8,20/8,47	546309/546650	Optional/Insulated
230	197800	20	9,89	DN65	14,32	546660	Insulated
345	296700	20	14,84	DN80	21,69	546680	Insulated
460	395600	20	19,78	DN80	21,69	546680	Insulated
575	494500	20	24,73	DN100	33,89	546610	Insulated
690	593400	20	29,67	DN100	33,89	546610	Insulated
805	692300	20	34,62	DN125	58,80	546612	Insulated
920	791200	20	39,56	DN125	58,80	546612	Insulated
1035	890100	20	44,51	DN125	58,80	546612	Insulated
1150	989000	20	49,45	DN125	58,80	546612	Insulated
1265	1087900	20	54,40	DN125	58,80	546612	Insulated
1380	1186800	20	59,34	DN150	86,20	546615	Insulated
1495	1285700	20	64,29	DN150	86,20	546615	Insulated
1610	1384600	20	69,23	DN150	86,20	546615	Insulated
1725	1483500	20	74,18	DN150	86,20	546615	Insulated
300	258000	20	12,90	DN65	14,32	546660	Insulated
375	322500	20	16,13	DN80	21,69	546680	Insulated
3000	2580000	20	129,00	DN200	146,00	546620	Insulated

OPTIONAL ACCESSORIES

CIRCULATION PUMP

With high efficiency circulation pump, you save energy
According to capacity and product type/series, boiler circulation pump may vary

QAZ36 CABLE TEMPERATURE SENSOR

Operable at the range of 0°C to 95°C.
+0.5/-0.5 Kelvin tolerance. 2 meters long.
Used for hot water storage tank. 1 pcs is required for hot water tank in CASCADE systems.

CHECK VALVE

The check valves with suitable connection diameter must be mounted on the installation according to the circuit diagram.

OCI345.06 CASCADE MODULE

For wall mounted boilers, 16 boilers, including 1 master and 15 slave boilers, can be controlled as cascade.
For 2 or more boilers, the CASCADE module must be used depending on the number of boilers.

6-BAR SAFETY VALVE

A spring safety valve must be mounted on the installation according to the circuit diagram, without any limitation of valve or otherwise.

AVS-74 CONTROL PANEL

Controls the parameters contained in the boiler control card. Connected to the boiler control card via the connection cable. Different language options that are not in the standard Control Panel are active. (DE, EN, FR, IT, NL, ES, DA, SV, FI, PT, PL, CS, SK, SL, HU, EL, TR, RU, SR)

QAC34 OUTDOOR AIR SENSOR

Operable at the range of -50°C to 70°C.
Allows connection at maximum 120 meters using cable with 1.5 mm2 section.
+1/-1 Kelvin tolerance.
1 pcs must be used in cascade or single systems.
Adjust the system temperature according to the outdoor temperature.
When the outdoor temperature drops below 4°C, the "Frost Protection" mode is activated.

AVS75

Used for 3-way valve. Maximum 3 can be connected to 1 CASCADE system.

OAD36 STRAP-ON TEMPERATURE SENSOR

Operable at the range of -30°C to 125°C. Allows connection at maximum 80 meters using cable with 1 mm² section. 0.5/-0.5 Kelvin tolerance.
1 pcs must be required for single boilers, 2 for CASCADE system: 1 at hot water inlet, 1 at cold water inlet.

QAA55 CASCADE ROOM UNIT

Different room comfort setting values and operating modes can be selected.
Ensures transfer of CASCADE system depending on the room temperature.

CLOSED SYSTEM CIRCUIT COMPONENTS

MANOMETER

Minimum one manometer covering a range of 0-6 bars must be installed to the system. The manometer must be placed in a manner easily visible from the charging point, and preferably, must be connected to the same point with the expansion tank.

EXPANSION TANK

Used to prevent any damage to the pipes and mechanic parts of the system due to high pressure caused by excess water occurred as a result of increased volume of hot water.

AIR SEPARATOR

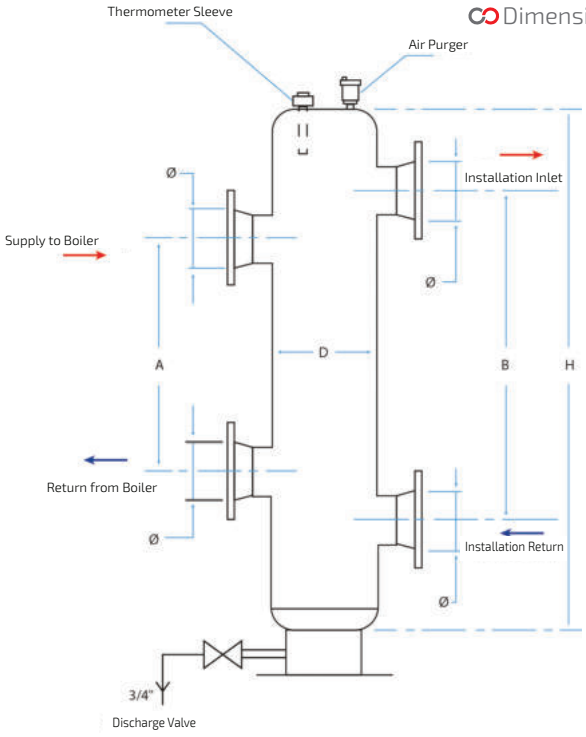
The air inside the installation dissolves by increase of temperature and circulates through the system in gas form. This results in cavitation in the installation, decrease in efficiency and noise. The air inside the installation can be removed by use of an air separator.

BALANCE VESSEL

The main duty of balance vessel is to provide thermal equilibrium through enabling mixing of cold fluid from the installation with hot water from the boiler. Additionally, they are used to compensate potential pressure differences in a system containing multiple pumps. The balance vessel must be positioned upright.

SIZING OF BALANCING VESSEL

- In order for healthy operation of balance vessel, it must be designed in proper dimensions.
- The discharged water temperature of the boiler should be measured at top of the balance vessel. For this, a ½" sleeve must be welded on top of the vessel; also an air purger must be mounted.
- Dimensions shown below are minimum dimensions required to be applied.



Total Capacity (kW)	Expansion Tank Capacity (l)	Total Capacity (kW)	Expansion Tank Capacity (l)
65	60	270-360	300
90	80	460-570	500
114	100	685-800	750
130	125	920	900
180	150	1030	1000
228	200	1140	1250

System Capacity	A	B	H	Balancing Vessel Diameter (D)	Inlet/Outlet Diameter (Q)
kW	cm	cm	cm	mm	mm
65	33	38	48	100	50
90	38	44	55	125	50
115	42	47	59	125	65
130	47	54	68	150	65
170	54	62	77	150	80
230	59	67	84	200	80
345	72	82	103	200	100
460	83	95	119	250	100
575	93	106	133	250	125
690	102	116	145	300	125
805	110	126	157	300	150
920	118	134	168	350	150
1035	131	150	188	350	150
1150	138	157	197	400	200
1265	144	164	206	400	200
1380	150	171	214	450	200
1495	155	178	222	450	200
1610	162	185	230	450	200
1725	169	192	238	450	200

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HEAD OFFICE
Address : Esentepe Mah. Milangaz Cad. No: 75 Kat: 3 Monumento Plaza Kartal / İstanbul / TÜRKİYE
Tel. : +90 216 442 93 00 (pbx) Fax. : +90 216 370 45 03
Mail : info@ecodenseboilers.com **Web** : www.ecodenseboilers.com

BRANCH OFFICE:
Bonici, Autobuska Stanica Br. 17-18 Tivat-Montenegro

FACTORY
Address : Türkgücü OSB Bülent Ecevit Bulvarı No: 11 Çorlu / Tekirda / TÜRKİYE
Tel. : +90 282 685 44 80/81 Fax. : +90 282 685 42 09

* Update and Issue: January 2020

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NEW GENERATION SERIES BURNERS

COMBUSTION SYSTEM EQUIPMENTS

ONE STAGE GAS BURNERS

CAPACITY TABLES

BURNER TYPE	CAPACITY		CAPACITY		NATURAL GAS CONSUMPTION		LPG GAS CONSUMPTION		FAN MOTOR POWER	VOLTAGE AT 50 Hz
	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. Nm³/h	Max. Nm³/h	Min. Nm³/h	Max. Nm³/h	kW	VAC
ECO 1 G C 1	8.600	43.000	10	50	1,0	5,2	0,4	1,9	0,11	1N 230
ECO 1 G C 1a	17.200	86.000	20	100	2,1	10,4	0,8	3,8	0,11	1N 230
ECO 2 G C 1	51.600	172.000	60	200	6,3	20,8	2,3	7,6	0,15	1N 230
ECO 2 G C 1a	86.000	299.280	100	348	10,4	36,3	3,8	13,3	0,15	1N 230

* Net calorific value H natural gas: 8250 kcal/Nm³ H LPG: 22250 kcal/Nm³

TWO STAGE GAS BURNERS

CAPACITY TABLES

BURNER TYPE	CAPACITY		CAPACITY		NATURAL GAS CONSUMPTION		LPG GAS CONSUMPTION		FAN MOTOR POWER	VOLTAGE AT 50 Hz
	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. Nm³/h	Max. Nm³/h	Min. Nm³/h	Max. Nm³/h	kW	VAC
ECO 2 G C 2	51.600	172.000	60	200	6,3	20,8	2,3	7,6	0,15	1N 230
ECO 2 G C 2 a	86.000	299.280	100	348	10,4	36,3	3,8	13,3	0,15	1N 230
ECO 30 G C 2	163.400	387.000	190	450	19,8	46,9	7,3	17,2	0,37	1N 230
ECO 30 G C 2a	223.600	602.000	260	700	27,1	73,0	9,9	26,8	0,75	3N 380
ECO 45 G C 2	288.100	645.000	335	750	34,9	78,2	12,8	28,7	0,75	3N 380
ECO 45 G C 2/L	288.100	749.920	335	872	34,9	90,9	12,8	33,3	0,75	3N 380
ECO 45 G C 2a	331.100	928.800	385	1.080	40,1	112,6	14,7	41,3	1,10	3N 380
ECO 45 G C 2b	331.100	1.075.000	385	1.250	40,1	130,3	14,7	47,8	1,50	3N 380
ECO 50 G C 2	215.000	1.290.000	250	1.500	26,1	156,4	9,6	57,3	2,20	3N 380
ECO 55 G C 2	258.000	1.720.000	300	2.000	31,3	208,5	11,5	76,4	3,00	3N 380
ECO 55 G C 2a	258.000	2.150.000	300	2.500	31,3	260,6	11,5	95,6	3,00	3N 380
ECO 60 G C 2	369.800	2.580.000	430	3.000	44,8	312,7	16,4	114,7	4	3N 380
ECO 65 G C 2	430.000	3.010.000	500	3.500	52,1	364,8	19,1	133,8	5,5	3N 380
ECO 70 G C 2	498.800	3.500.200	580	4.070	60,5	424,3	22,2	155,6	7,5	3N 380

*Net calorific value H natural gas : 8250 kcal/Nm³ H LPG: 22250 kcal/Nm³

MODULATING GAS BURNERS

CAPACITY TABLES

BURNER TYPE	CAPACITY		CAPACITY		NATURAL GAS CONSUMPTION		LPG GAS CONSUMPTION		FAN MOTOR POWER	VOLTAGE AT 50 Hz
	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. Nm³/h	Max. Nm³/h	Min. Nm³/h	Max. Nm³/h	kW	VAC
ECO 2 G C 3	51.600	172.000	60	200	6,3	20,8	2,3	7,6	0,15	1N 230
ECO 2 G C 3 a	86.000	299.280	100	348	10,4	36,3	3,8	13,3	0,15	1N 230
ECO 30 G C 3	163.400	387.000	190	450	19,8	46,9	7,3	17,2	0,37	1N 230
ECO 30 G C 3a	223.600	602.000	260	700	27,1	73,0	9,9	26,8	0,75	3N 380
ECO 45 G C 3	288.100	645.000	335	750	34,9	78,2	12,8	28,7	0,75	3N 380
ECO 45 G C 3/L	288.100	749.920	335	872	34,9	90,9	12,8	33,3	0,75	3N 380
ECO 45 G C 3a	331.100	928.800	385	1.080	40,1	112,6	14,7	41,3	1,10	3N 380
ECO 45 G C 3b	331.100	1.075.000	385	1.250	40,1	130,3	14,7	47,8	1,50	3N 380
ECO 50 G C 3	215.000	1.290.000	250	1.500	26,1	156,4	9,6	57,3	2,20	3N 380
ECO 55 G C 3	258.000	1.720.000	300	2.000	31,3	208,5	11,5	76,4	3,00	3N 380
ECO 55 G C 3a	258.000	2.150.000	300	2.500	31,3	260,6	11,5	95,6	3,00	3N 380
ECO 60 G C 3	369.800	2.580.000	430	3.000	44,8	312,7	16,4	114,7	4,00	3N 380
ECO 65 G C 3	430.000	3.010.000	500	3.500	52,1	364,8	19,1	133,8	5,5	3N 380
ECO 70 G C 3	498.800	3.500.200	580	4.070	60,5	424,3	22,2	155,6	7,5	3N 380
ECO 75 G C 3	686.280	4.800.000	798	5.581	83,2	581,8	30,5	213,3	11,00	3N 380

*Net calorific value H natural gas : 8250 kcal/Nm³ H LPG: 22250 kcal/Nm³

HEAVY OIL BURNERS

ONE STAGE HEAVY OIL BURNERS

CAPACITY TABLES

BURNER TYPE	CAPACITY		CAPACITY		HEAVY OIL CONSUMPTION		FAN MOTOR POWER	FUEL PUMP POWER	FUEL HEATER	VOLTAGE AT 50 Hz
	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. kg/h	Max. kg/h	kW	kW	kW	VAC
ECO 2 O S C 1	77.200	144.750	90	168	8	15	0,37	-	1,5	3N 380
ECO 2 O S C 1a	96.500	250.900	112	292	10	26	0,37	-	1,5	3N 380
ECO 30 O S C 1	96.500	347.400	112	404	10	36	0,37	-	3,0	3N 380
ECO 30 O S C 1a	96.500	482.500	112	561	10	50	0,37	-	3,0	3N 380
ECO 45 O S C 1	173.700	559.700	202	651	18	58	1,10	-	3,0	3N 380
ECO 45 O S C 1a	173.700	772.000	202	898	18	80	1,50	-	6,0	3N 380
ECO 45 O S C 1b	241.250	868.500	281	1.010	25	90	1,50	-	6,0	3N 380

* Net calorific value H Heavy Oil: 9650 kcal/kg

TWO-STAGE HEAVY OIL BURNERS

CAPACITY TABLES

BURNER TYPE	CAPACITY		CAPACITY		HEAVY OIL CONSUMPTION		FAN MOTOR POWER	FUEL PUMP POWER	FUEL HEATER	VOLTAGE AT 50 Hz
	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. kg/h	Max. kg/h	kW	kW	kW	VAC
ECO 30 O S C 2	96,500	386,000	112	449	10	40	0.37	-	3.0	3N 380
ECO 30 O S C 2a	96,500	627,250	112	729	10	65	0.75	-	3.0	3N 380
ECO 45 O S C 2	173,700	646,550	202	752	18	67	1.10	-	3.0	3N 380
ECO 45 O S C 2a	173,700	772,000	202	898	18	80	1.10	-	6.00	3N 380
ECO 45 O S C 2b	212,300	1,013,250	247	1,180	22	105	1.50	-	6.0	3N 380
ECO 50 O S C 2	337,750	1,351,000	393	1,571	35	140	2.20	-	6.0	3N 380
ECO 55 O S C 2	386,000	1,737,000	449	2,020	40	180	3.00	-	12.0	3N 380
ECO 55 O S C 2a	386,000	2,123,000	449	2,469	40	220	3.00	-	12.0	3N 380
ECO 60 O S C 2	598,300	2,576,550	696	3,000	62	267	4.00	0.75	14.0	3N 380
ECO 65 O S C 2	733,400	3,010,800	853	3,500	76	312	5.50	0.75	14.0	3N 380
ECO 70 O S C 2	916,750	3,502,950	1,066	4,070	95	363	7.50	0.75	2 x 9,0	3N 380

* Net calorific value H Heavy Oil: 9650 kcal/kg

MODULATING HEAVY OIL BURNERS

CAPACITY TABLES

BURNER TYPE	CAPACITY		CAPACITY		HEAVY OIL CONSUMPTION		FAN MOTOR POWER	FUEL PUMP POWER	FUEL HEATER	VOLTAGE AT 50 Hz
	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. kg/h	Max. kg/h	kW	kW	kW	VAC
ECO 45 O S C 3b	212,300	1,013,250	247	1,180	22	105	1.50	-	6.0	3N 380
ECO 50 O S C 3	337,750	1,351,000	393	1,571	35	140	2.20	-	6.0	3N 380
ECO 55 O S C 3	386,000	1,737,000	449	2,020	40	180	3.00	-	12.0	3N 380
ECO 55 O S C 3a	386,000	2,123,000	449	2,469	40	220	3.00	-	12.0	3N 380
ECO 60 O S C 3	598,300	2,576,550	696	3,000	62	267	4.00	1.10	14.0	3N 380
ECO 65 O S C 3	733,400	3,010,800	853	3,500	76	312	5.50	1.50	2 x 9,0	3N 380
ECO 70 O S C 3	916,750	3,502,950	1,066	4,070	95	363	7.50	1.50	2 x 9,0	3N 380
ECO 75 O S C 3	1,003,600	4,825,000	1,167	5,600	104	500	11.00	1.50	2 x 14,0	3N 380

* Net calorific value H Heavy Oil: 9650 kcal/kg

ONE STAGE LIGHT OIL BURNERS

CAPACITY TABLES

BURNER TYPE	CAPACITY		CAPACITY		LIGHT-OIL CONSUMPTION		FAN MOTOR POWER	FUEL PUMP POWER	VOLTAGE AT 50 Hz
	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. kg/h	Max. kg/h	kW	kW	VAC
ECO 1 O L C 1	10.200	51.000	12	59	1	5	0,11	-	1N 230
ECO 1 O L C 1a	40.800	81.600	47	95	4	8	0,11	-	1N 230
ECO 2 O L C 1	81.600	153.000	95	178	8	15	0,37	-	3N 380
ECO 2 O L C 1a	102.000	265.200	119	308	10	26	0,37	-	3N 380
ECO 30 O L C 1	102.000	367.200	119	427	10	36	0,37	-	3N 380
ECO 30 O L C 1a	102.000	510.000	119	593	10	50	0,37	-	3N 380
ECO 45 O L C 1	183.600	591.600	213	688	18	58	1,10	-	3N 380
ECO 45 O L C 1a	183.600	816.000	213	949	18	80	1,50	-	3N 380
ECO 45 O L C 1b	255.000	918.000	297	1.067	25	90	1,50	-	3N 380

* Net calorific value H Light Oil: 10200 kcal/kg

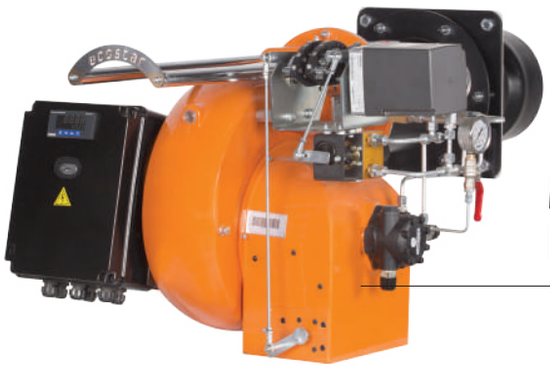
TWO STAGE LIGHT OIL BURNERS

CAPACITY TABLES

BURNER TYPE	CAPACITY		CAPACITY		LIGHT-OIL CONSUMPTION		FAN MOTOR POWER	FUEL PUMP POWER	VOLTAGE AT 50 Hz
	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. kg/h	Max. kg/h	kW	kW	VAC
ECO 30 O L C 2	102.000	408.000	119	474	10	40	0,37	-	3N 380
ECO 30 O L C 2a	102.000	663.000	119	771	10	65	0,75	-	3N 380
ECO 45 O L C 2	183.600	683.400	213	795	18	67	1,10	-	3N 380
ECO 45 O L C 2a	183.600	816.000	213	949	18	80	1,10	-	3N 380
ECO 45 O L C 2b	224.400	1.071.000	261	1.245	22	105	1,50	-	3N 380
ECO 50 O L C 2	357.000	1.428.000	415	1.660	35	140	2,20	-	3N 380
ECO 55 O L C 2	408.000	1.836.000	474	2.135	40	180	3,00	-	3N 380
ECO 55 O L C 2a	408.000	2.244.000	474	2.609	40	220	3,00	-	3N 380
ECO 60 O L C 2	632.400	2.723.400	735	3.167	62	267	4,00	0,75	3N 380
ECO 65 O L C 2	775.200	3.182.400	901	3.700	76	312	5,50	0,75	3N 380
ECO 70 O L C 2	969.000	3.702.600	1.127	4.305	95	363	7,50	0,75	3N 380

* Net calorific value H Light Oil: 10200 kcal/kg

LIGHT OIL BURNERS



MODULATING LIGHT OIL BURNERS

CAPACITY TABLES

BURNER TYPE	CAPACITY		CAPACITY		LIGHT-OIL CONSUMPTION		FAN MOTOR POWER	FUEL PUMP POWER	VOLTAGE AT 50 Hz
	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. kg/h	Max. kg/h	kW	kW	VAC
ECO 45 O L C 3b	224.400	1.071.000	261	1.245	22	105	1,50	-	3N 380
ECO 50 O L C 3	357.000	1.428.000	415	1.660	35	140	2,20	-	3N 380
ECO 55 O L C 3	408.000	1.836.000	474	2.135	40	180	3,00	-	3N 380
ECO 55 O L C 3a	408.000	2.244.000	474	2.609	40	220	3,00	-	3N 380
ECO 60 O L C 3	632.400	2.723.400	735	3.167	62	267	4,00	1,10	3N 380
ECO 65 O L C 3	775.200	3.182.400	901	3.700	76	312	5,50	1,50	3N 380
ECO 70 O L C 3	969.000	3.702.600	1.127	4.305	95	363	7,50	1,50	3N 380
ECO 75 O L C 3	1.060.800	5.100.000	1.233	5.930	104	500	11,00	1,50	3N 380

* Net calorific value H Light Oil: 10200 kcal/kg

GAS-HEAVY OIL

TWO STAGE GAS-HEAVY OIL BURNERS

CAPACITY TABLES

BURNER TYPE	GAS CAPACITY		GAS CAPACITY		NATURAL GAS CONSUMPTION		HEAVY-OIL CAPACITY		HEAVY-OIL CAPACITY		HEAVY-OIL CONS.		FAN MOTOR POWER	FUEL PUMP POWER	FUEL HEATER	VOLTAGE AT 50 Hz
	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. Nm3/h	Max. Nm3/h	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. kg/h	Max. kg/h	kW	kW	kW	VAC
ECO 45 K S C 2	172.000	645.000	200	750	20,8	78,2	172.000	645.000	200	750	17,8	66,8	0,75	0,75	3	3N 380
ECO 45 K S C 2a	172.000	860.000	200	1.000	20,8	104,2	212.420	851.400	247	990	22,0	88,2	1,10	0,75	6	3N 380
ECO 45 K S C 2b	172.000	1.032.000	200	1.200	20,8	125,1	212.420	1.014.800	247	1.180	22,0	105,2	1,50	0,75	6	3N 380
ECO 50 K S C 2	215.000	1.290.000	250	1.500	26,1	156,4	337.750	1.351.000	393	1.571	35,0	140,0	2,20	0,75	6	3N 380
ECO 55 K S C 2	258.000	1.720.000	300	2.000	31,3	208,5	386.000	1.737.000	449	2.020	40,0	180,0	3,00	0,75	12	3N 380
ECO 55 K S C 2a	258.000	2.150.000	300	2.500	31,3	260,6	386.000	2.123.000	449	2.469	40,0	220,0	3,00	0,75	12	3N 380
ECO 60 K S C 2	369.800	2.580.000	430	3.000	44,8	312,7	598.560	2.580.000	696	3.000	62,0	267,4	4,00	0,75	14	3N 380
ECO 65 K S C 2	430.000	3.010.000	500	3.500	52,1	364,8	733.580	3.010.000	853	3.500	76,0	311,9	5,50	0,75	14	3N 380
ECO 70 K S C 2	498.800	3.500.200	580	4.070	60,5	424,3	916.760	3.500.200	1.066	4.070	95,0	362,7	7,50	0,75	2 x 9	3N 380

* Net calorific value H Natural gas: 8250 kcal/Nm³ H Heavy Oil: 9650 kcal/kg

GAS-HEAVY OIL BURNERS

MODULATING GAS-HEAVY OIL BURNERS

CAPACITY TABLES

BURNER TYPE	GAS CAPACITY		GAS CAPACITY		NATURAL GAS CONSUMPTION		HEAVY-OIL CAPACITY		HEAVY-OIL CAPACITY		HEAVY-OIL CONS.		FAN MOTOR POWER	FUEL PUMP POWER	FUEL HEATER	VOLTAGE AT 50 Hz
	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. Nm3/h	Max. Nm3/h	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. kg/h	Max. kg/h	kW	kW	kW	VAC
ECO 45 K S C 3b	172.000	1.032.000	200	1.200	20,8	125,1	212.420	1.014.800	247	1.180	22,0	105,2	1,50	0,75	6,0	3N 380
ECO 50 K S C 3	215.000	1.290.000	250	1.500	26,1	156,4	337.750	1.351.000	393	1.571	35,0	140,0	2,20	0,75	6,0	3N 380
ECO 55 K S C 3	258.000	1.720.000	300	2.000	31,3	208,5	386.000	1.737.000	449	2.020	40,0	180,0	3,00	1,10	12,0	3N 380
ECO 55 K S C 3a	258.000	2.150.000	300	2.500	31,3	260,6	386.000	2.123.000	449	2.469	40,0	220,0	3,00	1,10	12,0	3N 380
ECO 60 K S C 3	369.800	2.580.000	430	3.000	44,8	312,7	598.560	2.580.000	696	3.000	62,0	267,4	4,00	1,10	14,0	3N 380
ECO 65 K S C 3	430.000	3.010.000	500	3.500	52,1	364,8	733.580	3.010.000	853	3.500	76,0	311,9	5,50	1,50	2 x 9,0	3N 380
ECO 70 K S C 3	498.800	3.500.200	580	4.070	60,5	424,3	916.760	3.500.200	1.066	4.070	95,0	362,7	7,50	1,50	2 x 9,0	3N 380
ECO 75 K S C 3	686.000	4.800.000	798	5.581	83,2	581,8	1.003.620	4.824.600	1.167	5.610	104,0	500,0	11,00	1,50	2 x 14,0	3N 380

* Net calorific value H Natural gas: 8250 kcal/Nm³ H Heavy Oil: 9650 kcal/kg

GAS-LIGHT OIL

ONE STAGE GAS-LIGHT OIL BURNERS

CAPACITY TABLES

BURNER TYPE	GAS CAPACITY		GAS CAPACITY		NATURAL GAS CONSUMPTION		LIGHT OIL CAPACITY		LIGHT OIL CAPACITY		LIGHT OIL CONSUMPTION		FAN MOTOR POWER	FUEL PUMP POWER	VOLTAGE AT 50 Hz
	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. Nm3/h	Max. Nm3/h	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. kg/h	Max. kg/h	kW	kW	VAC
ECO 2 K L C 1	51,600	172,000	60	200	6.3	20.8	77,400	144,480	90	168	7.6	14.2	0.15	0.15	1N 230
ECO 2 K L C 1 a	86,000	299,280	100	348	10.4	36.3	96,320	251,120	112	292	9.4	24.6	0.15	0.15	1N 230

* Net calorific value H Natural Gas: 8250 kcal/Nm³ H Light Oil: 10200 kcal/kg

TWO STAGE GAS-LIGHT OIL BURNERS

CAPACITY TABLES

BURNER TYPE	GAS CAPACITY		GAS CAPACITY		NATURAL GAS CONSUMPTION		LIGHT OIL CAPACITY		LIGHT OIL CAPACITY		LIGHT OIL CONSUMPTION		FAN MOTOR POWER	FUEL PUMP POWER	VOLTAGE AT 50 Hz
	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. Nm3/h	Max. Nm3/h	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. kg/h	Max. kg/h	kW	kW	VAC
ECO 45 K L C 2	172,000	645,000	200	750	20.8	78.2	172,000	645,000	200	750	16.9	63.2	0.75	0.75	3N 380
ECO 45 K L C 2a	172,000	860,000	200	1,000	20.8	104.2	212,420	851,400	247	990	20.8	83.5	1.10	0.75	3N 380
ECO 45 K L C 2b	172,000	1,032,000	200	1,200	20.8	125.1	212,420	1,014,800	247	1,180	20.8	99.5	1.50	0.75	3N 380
ECO 50 K L C 2	215,000	1,290,000	250	1,500	26.1	156.4	337,750	1,351,000	393	1,571	33.1	132.5	2.20	0.75	3N 380
ECO 55 K L C 2	258,000	1,720,000	300	2,000	31.3	208.5	386,000	1,737,000	449	2,020	37.8	170.3	3.00	0.75	3N 380
ECO 55 K L C 2a	258,000	2,150,000	300	2,500	31.3	260.6	386,000	2,123,000	449	2,469	37.8	208.1	3.00	0.75	3N 380
ECO 60 K L C 2	369,800	2,580,000	430	3,000	44.8	312.7	598,560	2,580,000	696	3,000	58.7	252.9	4.00	0.75	3N 380
ECO 65 K L C 2	430,000	3,010,000	500	3,500	52.1	364.8	733,580	3,010,000	853	3,500	71.9	295.1	5.50	0.75	3N 380
ECO 70 K L C 2	498,800	3,500,200	580	4,070	60.5	424.3	916,760	3,500,200	1,066	4,070	89.9	343.2	7.50	0.75	3N 380

* Net calorific value H Natural Gas: 8250 kcal/Nm³ H Light Oil: 10200 kcal/kg

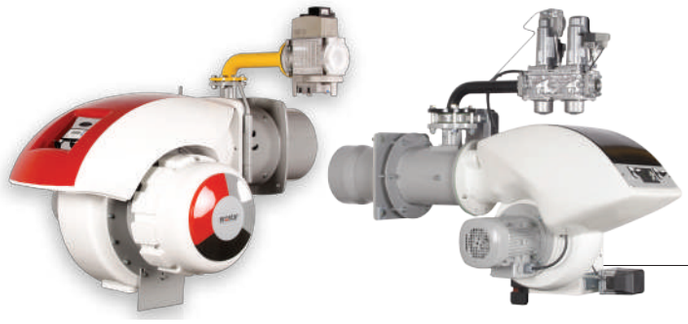
MODULATING GAS-LIGHT OIL BURNERS

CAPACITY TABLES

BURNER TYPE	GAS CAPACITY		GAS CAPACITY		NATURAL GAS CONSUMPTION		LIGHT OIL CAPACITY		LIGHT OIL CAPACITY		LIGHT OIL CONSUMPTION		FAN MOTOR POWER	FUEL PUMP POWER	VOLTAGE AT 50 Hz
	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. Nm3/h	Max. Nm3/h	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. kg/h	Max. kg/h	kW	kW	VAC
ECO 45 K L C 3b	172,000	1,032,000	200	1,200	20.8	125.1	212,420	1,014,800	247	1,180	20.8	99.5	1.50	0.75	3N 380
ECO 50 K L C 3	215,000	1,290,000	250	1,500	26.1	156.4	337,750	1,351,000	393	1,571	33.1	132.5	2.20	0.75	3N 380
ECO 55 K L C 3	258,000	1,720,000	300	2,000	31.3	208.5	386,000	1,737,000	449	2,020	37.8	170.3	3.00	1.10	3N 380
ECO 55 K L C 3a	258,000	2,150,000	300	2,500	31.3	260.6	386,000	2,123,000	449	2,469	37.8	208.1	3.00	1.10	3N 380
ECO 60 K L C 3	369,800	2,580,000	430	3,000	44.8	312.7	598,560	2,580,000	696	3,000	58.7	252.9	4.00	1.10	3N 380
ECO 65 K L C 3	430,000	3,010,000	500	3,500	52.1	364.8	733,580	3,010,000	853	3,500	71.9	295.1	5.50	1.50	3N 380
ECO 70 K L C 3	498,800	3,500,200	580	4,070	60.5	424.3	916,760	3,500,200	1,066	4,070	89.9	343.2	7.50	1.50	3N 380
ECO 75 K L C 3	686,000	4,800,000	798	5,581	83.2	581.8	1,003,620	4,824,600	1,167	5,610	98.4	473.0	11.00	1.50	3N 380

* Net calorific value H Natural Gas: 8250 kcal/Nm³ H Light Oil: 10200 kcal/kg

NG SERIES GAS BURNERS



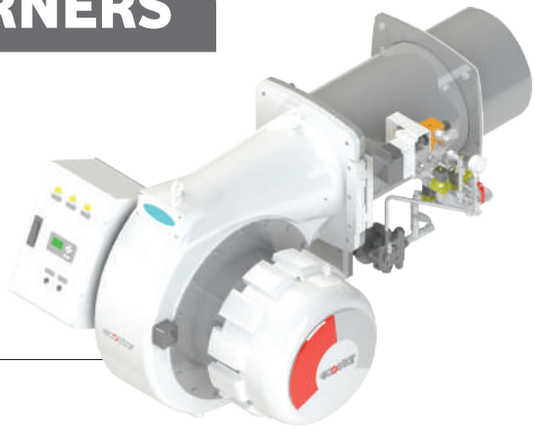
NEW GENERATION MODULATING GAS BURNERS

CAPACITY TABLES

BURNER TYPE	CAPACITY		CAPACITY		NATURAL GAS CONSUMPTION		LPG CONSUMPTION		FAN MOTOR POWER	VOLTAGE AT 50 Hz
	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. Nm3/h	Max. Nm3/h	Min. Nm3/h	Max. Nm3/h	kW	VAC
ECO 50 G C 3 NG	215.000	1.290.000	250	1.500	26,1	156,4	9,6	57,3	2,20	3N 380
ECO 55 G C 3 NG	258.000	1.720.000	300	2.000	31,3	208,5	11,5	76,4	3,00	3N 380
ECO 55 G C 3a NG	258.000	2.150.000	300	2.500	31,3	260,6	11,5	95,6	3,00	3N 380
ECO 60 G C 3 NG	369.800	2.580.000	430	3.000	44,8	312,7	16,4	114,7	4	3N 380
ECO 65 G C 3 NG	430.000	3.010.000	500	3.500	52,1	364,8	19,1	133,8	5,5	3N 380
ECO 70 G C 3 NG	498.800	3.500.200	580	4.070	60,5	424,3	22,2	155,6	7,5	3N 380
ECO 8 G C 3 NG	516.000	5.160.000	600	6.000	62,5	625,5	22,9	229,3	11,00	3N 380
ECO 8 G C 3 a NG	602.000	6.020.000	700	7.000	73,0	729,7	26,8	267,6	11,00	3N 380
ECO 8 G C 3 b NG	688.000	6.880.000	800	8.000	83,4	833,9	30,6	305,8	15,00	3N 380
ECO 9 G C 3 NG	731.000	7.310.000	850	8.500	88,6	886,1	32,5	324,9	18,50	3N 380
ECO 9 G C 3 a NG	774.000	7.740.000	900	9.000	93,8	938,2	34,4	344,0	22,00	3N 380
ECO 9 G C 3 b NG	946.000	9.030.000	1.100	10.500	114,7	1.094,5	42,0	401,3	22,00	3N 380
ECO 9 G C 3 c NG	1.290.000	10.320.000	1.500	12.000	156,4	1.250,9	57,3	458,7	22,00	3N 380

NG SERIES LIGHT OIL BURNERS

NEW GENERATION MODULATING LIGHT OIL BURNERS



CAPACITY TABLES

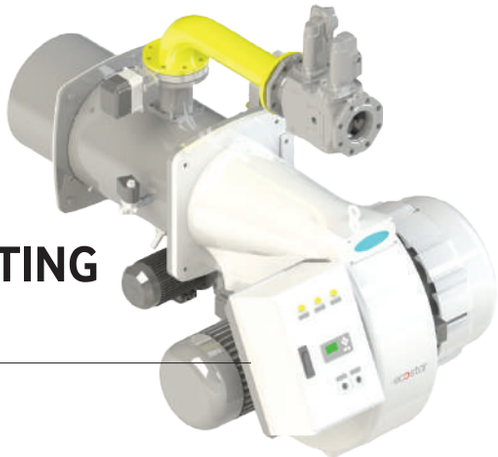
BURNER TYPE	CAPACITY		CAPACITY		LIGHT OIL CONSUMPTION		FAN MOTOR POWER	VOLTAGE AT 50 Hz
	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. kg/h	Max. kg/h	kW	VAC
ECO 8 O L C 3 NG	722.400	5.160.000	840	6.000	70,8	505,9	11,00	3N 380
ECO 8 O L C 3a NG	842.800	6.020.000	980	7.000	82,6	590,2	11,00	3N 380
ECO 8 O L C 3b NG	963.200	6.880.000	1.120	8.000	94,4	674,5	15,00	3N 380
ECO 9 O L C 3 NG	1.023.400	7.310.000	1.190	8.500	100,3	716,7	18,50	3N 380
ECO 9 O L C 3a NG	1.083.600	7.740.000	1.260	9.000	106,2	758,8	22,00	3N 380
ECO 9 O L C 3b NG	1.324.400	9.030.000	1.540	10.500	129,8	885,3	22,00	3N 380
ECO 9 O L C 3c NG	1.806.000	10.320.000	2.100	12.000	177,1	1.011,8	22,00	3N 380

NG SERIES HEAVY OIL BURNERS

NEW GENERATION MODULATING HEAVY OIL BURNERS

CAPACITY TABLES

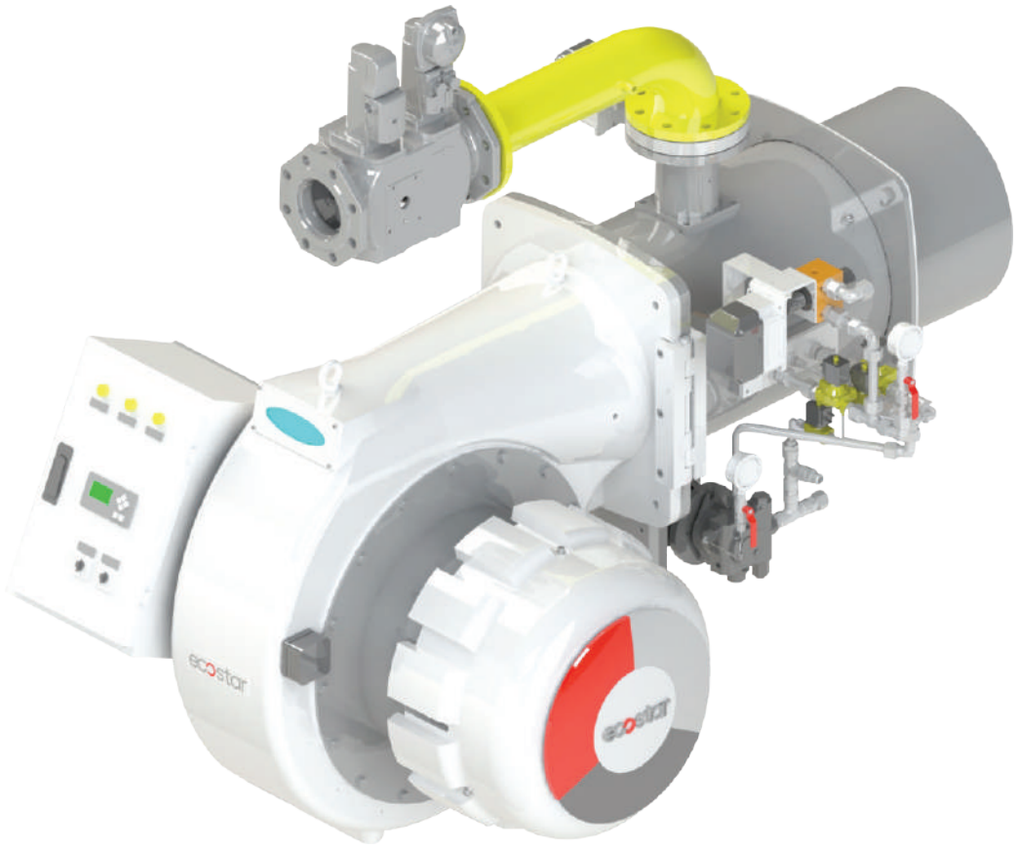
BURNER TYPE	CAPACITY		CAPACITY		HEAVY-OIL CONSUMPTION		FAN MOTOR POWER	VOLTAGE AT 50 Hz
	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. kg/h	Max. kg/h	kW	VAC
ECO 8 O S C 3 NG	722.400	5.160.000	840	6.000	74,9	534,7	11,00	3N 380
ECO 8 O S C 3a NG	842.800	6.020.000	980	7.000	87,3	623,8	11,00	3N 380
ECO 8 O S C 3b NG	963.200	6.880.000	1.120	8.000	99,8	713,0	15,00	3N 380
ECO 9 O S C 3 NG	1.023.400	7.310.000	1.190	8.500	106,1	757,5	18,50	3N 380
ECO 9 O S C 3a NG	1.083.600	7.740.000	1.260	9.000	112,3	802,1	22,00	3N 380
ECO 9 O S C 3b NG	1.324.400	9.030.000	1.540	10.500	137,2	935,8	22,00	3N 380
ECO 9 O S C 3c NG	1.806.000	10.320.000	2.100	12.000	187,2	1.069,4	22,00	3N 380



NEW GENERATION MODULATING GAS-HEAVY OIL BURNERS

CAPACITY TABLES

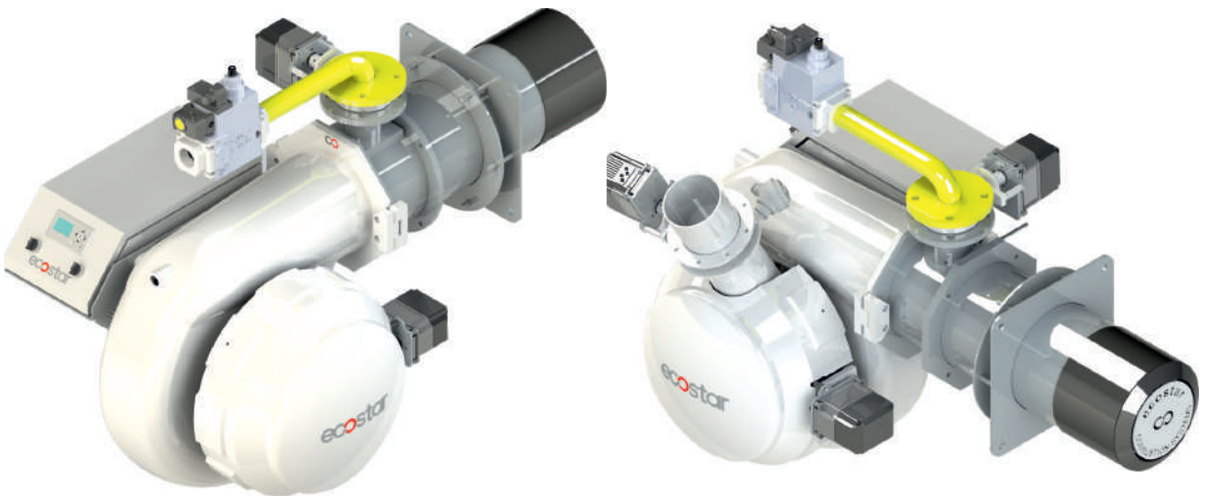
BURNER TYPE	NATURAL GAS CAPACITY		NATURAL GAS CAPACITY		NATURAL GAS CONSUMPTION		HEAVY-OIL CAPACITY		HEAVY-OIL CAPACITY		HEAVY-OIL CONS.		FAN MOTOR POWER	VOLTAGE AT 50 Hz
	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. Nm3/h	Max. Nm3/h	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. kg/h	Max. kg/h	kW	VAC
ECO 8 K S C 3 NG	516,000	5,160,000	600	6,000	63	625	722,400	5,160,000	840	6,000	74.9	534.7	11.00	3N 380
ECO 8 K S C 3 a NG	602,000	6,020,000	700	7,000	73	730	842,800	6,020,000	980	7,000	87.3	623.8	11.00	3N 380
ECO 8 K S C 3 b NG	688,000	6,880,000	800	8,000	83	834	963,200	6,880,000	1,120	8,000	99.8	713.0	15.00	3N 380
ECO 9 K S C 3 NG	731,000	7,310,000	850	8,500	89	886	1,023,400	7,310,000	1,190	8,500	106.1	757.5	18.50	3N 380
ECO 9 K S C 3a NG	774,000	7,740,000	900	9,000	94	938	1,083,600	7,740,000	1,260	9,000	112.3	802.1	22.00	3N 380
ECO 9 K S C 3b NG	946,000	9,030,000	1,100	10,500	115	1,095	1,324,400	9,030,000	1,540	10,500	137.2	935.8	22.00	3N 380
ECO 9 K S C 3c NG	1,290,000	10,320,000	1,500	12,000	156	1,251	1,806,000	10,320,000	2,100	12,000	187.2	1,069.4	22.00	3N 380



NEW GENERATION MODULATING GAS-LIGHT OIL BURNERS

CAPACITY TABLES

BURNER TYPE	NATURAL GAS CAPACITY		NATURAL GAS CAPACITY		NATURAL GAS CONSUMPTION		LIGHT OIL CAPACITY		LIGHT OIL CAPACITY		LIGHT OIL CONS.		FAN MOTOR POWER	VOLTAGE AT 50 Hz
	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. Nm3/h	Max. Nm3/h	Min. kcal/h	Max. kcal/h	Min. kW	Max. kW	Min. kg/h	Max. kg/h	kW	VAC
ECO 8 K L C 3 NG	516,000	5,160,000	600	6,000	63	625	722,400	5,160,000	840	6,000	70.8	505.9	11.00	3N 380
ECO 8 K L C 3 a NG	602,000	6,020,000	700	7,000	73	730	842,800	6,020,000	980	7,000	82.6	590.2	11.00	3N 380
ECO 8 K L C 3 b NG	688,000	6,880,000	800	8,000	83	834	963,200	6,880,000	1,120	8,000	94.4	674.5	15.00	3N 380
ECO 9 K L C 3 NG	731,000	7,310,000	850	8,500	89	886	1,023,400	7,310,000	1,190	8,500	100.3	716.7	18.50	3N 380
ECO 9 K L C 3a NG	774,000	7,740,000	900	9,000	94	938	1,083,600	7,740,000	1,260	9,000	106.2	758.8	22.00	3N 380
ECO 9 K L C 3b NG	946,000	9,030,000	1,100	10,500	115	1,095	1,324,400	9,030,000	1,540	10,500	129.8	885.3	22.00	3N 380
ECO 9 K L C 3c NG	1,290,000	10,320,000	1,500	12,000	156	1,251	1,806,000	10,320,000	2,100	12,000	177.1	1,011.8	22.00	3N 380



NEW GENERATION LOW NOx AND ULTRA LOW NOx SERIES GAS BURNERS

CAPACITY TABLES

BURNER TYPE	CAPACITY		CAPACITY		NATURAL GAS CONSUMPTION		NOx EMISSIONS		FAN MOTOR POWER	MAIN SUPPLY
	Min. kcal/h	Max. kcal/h	Min. Min. kW	Max. Max. kW	Min. Nm^3/h	Max. Nm^3/h	Standard mg/kWh	FGR mg/kWh	kW	VAC
ECO NG LNX 90 G (FGR)	154.800	774.000	180	900	18,8	93,8	<80	<30	1,50	3N 380
ECO NG LNX 120 G(FGR)	215.000	1.032.000 (989.000)	250	1.200 (1.150)	26,1	125,1 (120)	<80	<30	2,20	3N 380
ECO NG LNX 200 G(FGR)	404.200	1.720.000 (1.651.200)	470	2.000 (1.920)	49,0	208,5 (200)	<80	<30	2,00	3N 380
ECO NG LNX 300 G(FGR)	369.800 (378.400)	2.580.000	430 (440)	3.000	44,8 (45,9)	312,7	<80	<30	4,00	3N 380
ECO NG LNX 400 G(FGR)	498.800	3.440.000 (3.371.200)	580	4.000 (3.920)	60,5	417 (409)	<80	<30	7,50	3N 380
ECO NG LNX 560 G(FGR)	686.280 (705.200)	4.799.660	798 (820)	5.581	83,2 (85,5)	581,8	<80	<30	11,00	3N 380
ECO NG LNX 670 G(FGR)	989.000	5.762.000 (5.710.400)	1.150	6700 (6.640)	120	698,4 (692)	<80	<30	15,00	3N 380
ECO NG LNX 720 G(FGR)	1.032.000 (1.083.600)	6.192.000	1.200 (1.260)	7.200	125,1 (126,2)	751	<80	<30	15,00	3N 380
ECO NG LNX 1150 G(FGR)	2.580.000 (2.605.800)	9.890.000	3.000 (3.030)	11.500	312,7 (315,9)	1.198,8	<80	<30	22,00	3N 380

Extern al Flue Gas Resircul ation (FGR) is effective and low cost sol ution to achieve ver y low NOx emissions. Some flue gas from chimney is led back ta the combustion chamber through burner; which reduces NOx emissions by cooling down flame peak temperature and by slowing combustion reactions.

Achivable reduction depends on burner type, boiler; combustion air temperature and other factors. With the use of Ecostar Ultra Low NOx gas burners, NOx flue gas emissions can be reduced by up ta %30 under optimum operating conditions.

ECO-PR

The new ECO-PR series burner range makes use of the premixed combustion technology. Mixing of gas and air required for combustion in order to achieve high-efficiency combustion before being introduced into the burner is called as "Premix Technology". By a frequency-controlled fan, it is possible to provide ideal air content required for combustion at each capacity during high modulating operation.

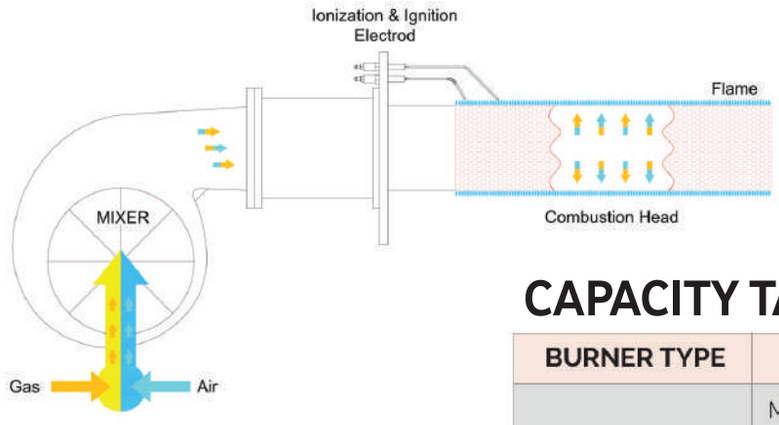
Working Principle-Premix Technology

ECO-PR Premix Burners are flexible and adaptable to any type of industrial application such as,

- Boilers,
- Ovens for food applications,
- Heat exchangers,
- Heat generators,
- Steam generators,
- Spraying booths
- Special ap plications. Special designs can be done for the special applications.

Technical Specifications

- Compact design,
- Wide capacity range from 100 kW to 1000 kW,
- High modulation ratios (Up to 1/6), and CO polluting flue gas emissions,
- Silent operation,
- Reduced electric consumptions,
- Easy adjustment and maintenance,

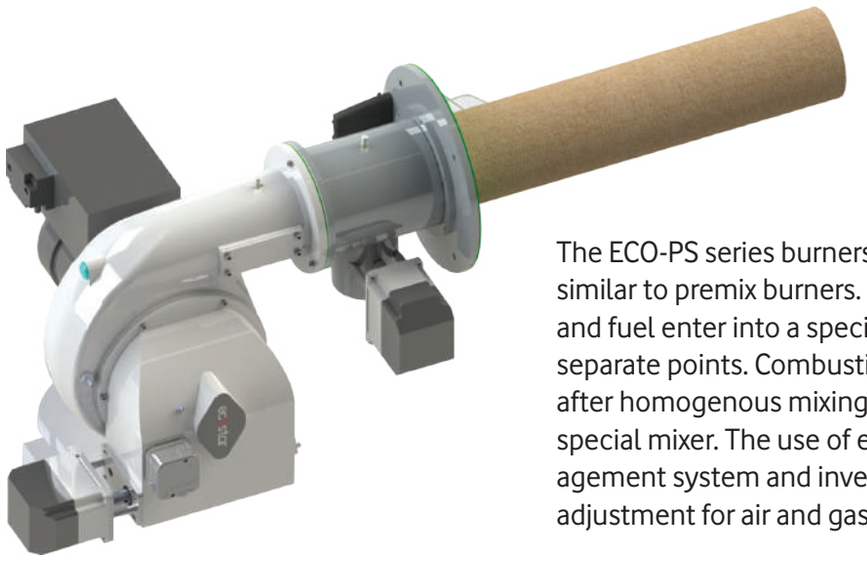


CAPACITY TABLES

BURNER TYPE	CAPACITY		VOLTAGE AT 50 Hz
	Min. kW	Max. kW	VAC
ECO PR-100/PV	20	100	1N 230
ECO PR-150/PV	30	150	1N 230
ECO PR-200/PV	40	200	1N 230
ECO PR-250/PV	40	250	1N 230
ECO PR-350/PV	60	350	1N 230
ECO PR-500/PV	80	500	1N 230
ECO PR-700/PV	115	700	1N 230
ECO PR-850/PV	140	850	1N 230
ECO PR-1000/PV	170	1000	1N 230

POSTMIX BURNER

ECO-PS

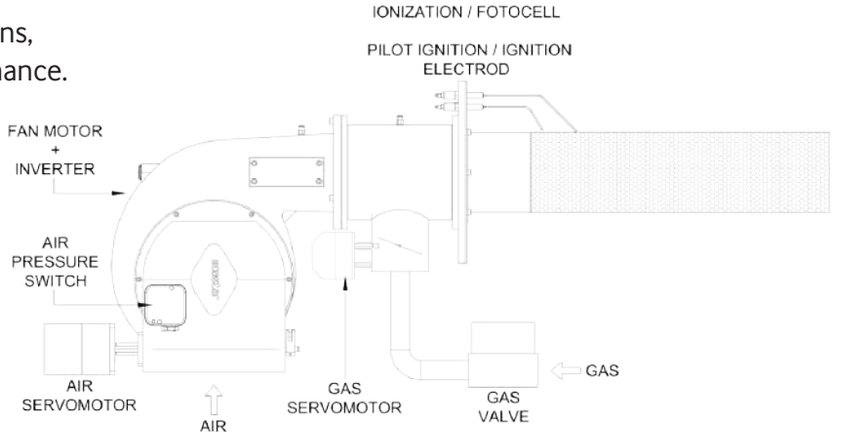


The ECO-PS series burners have a working principle similar to premix burners. Unlike premix burners, air and fuel enter into a specially designed mixer unit from separate points. Combustion of air and fuel takes place after homogenous mixing in the combustion head with special mixer. The use of electronic combustion management system and inverter provides high sensitive adjustment for air and gas and high modulation rate.

Burning occurs on the surface of the metal fiber combustion head. Since the flame temperature at the surface of the combustion head is below 1200 ° C, the thermal NOx, which is the main effect of NOx formation, is prevented at this point.

Technical Specifications

- Wide capacity(1-2.5 MW), and CO polluting flue gas emissions,
- High modulation ratios,
- Silent operation,
- Reduced electric consumptions,
- Easy adjustment and maintenance.

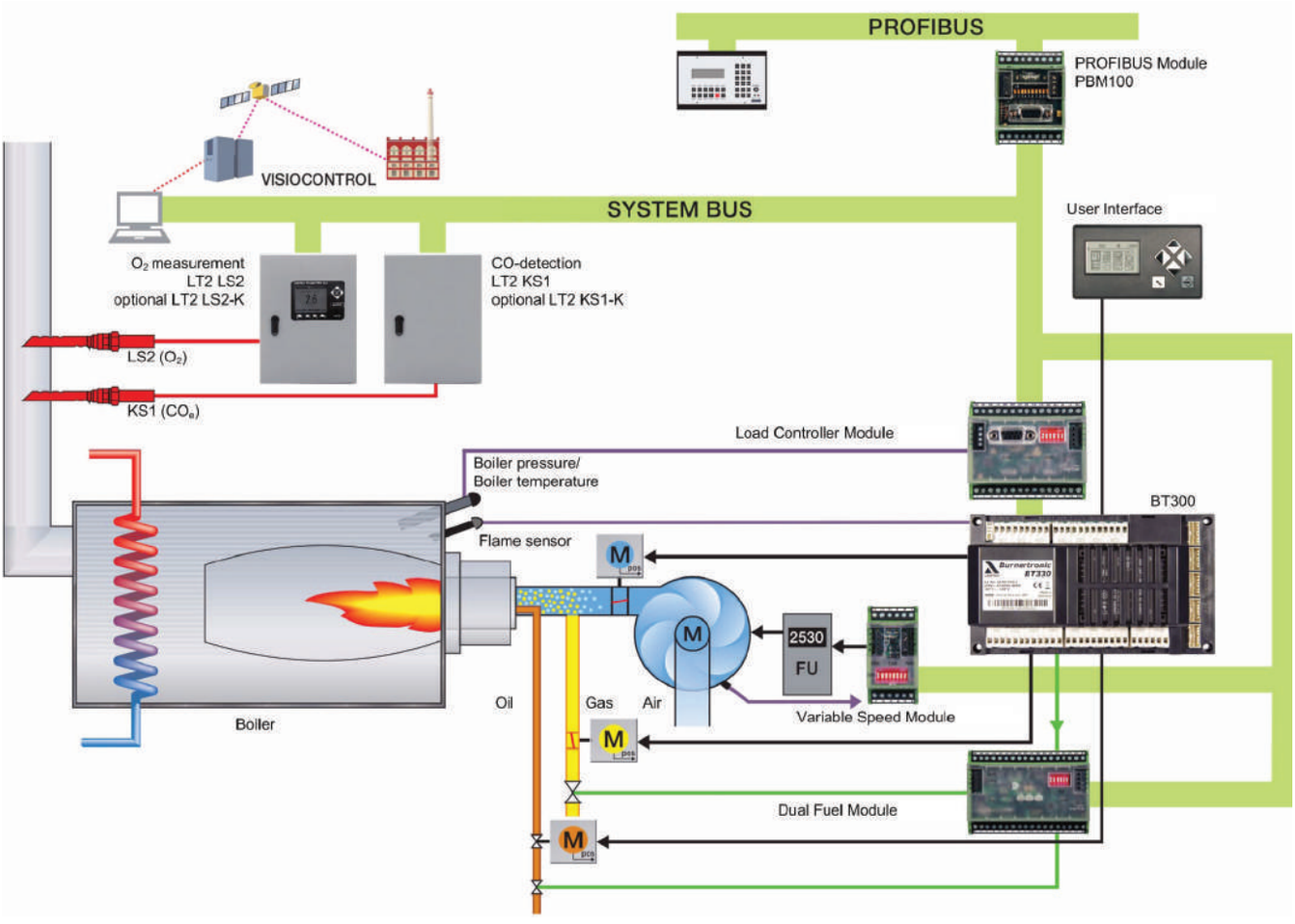


CAPACITY TABLES

BURNER TYPE	CAPACITY		VOLTAGE AT 50 Hz
	Min. kW	Max. kW	VAC
ECO PS-1000	125	1000	3N 380
ECO PS-1500	190	1500	3N 380
ECO PS-2000	250	2000	3N 380
ECO PS-2500	300	2500	3N 380

ELECTRONIC AIR/FUEL CONTROL

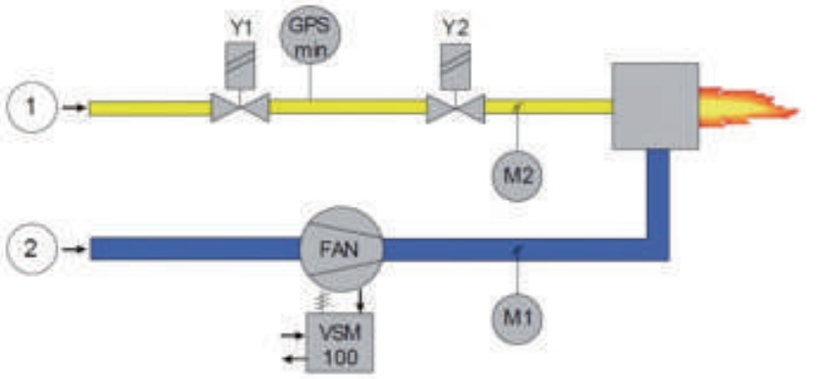
A micro-processor control with certain system components for control and inspection of medium to high power blow burners with burner management system.



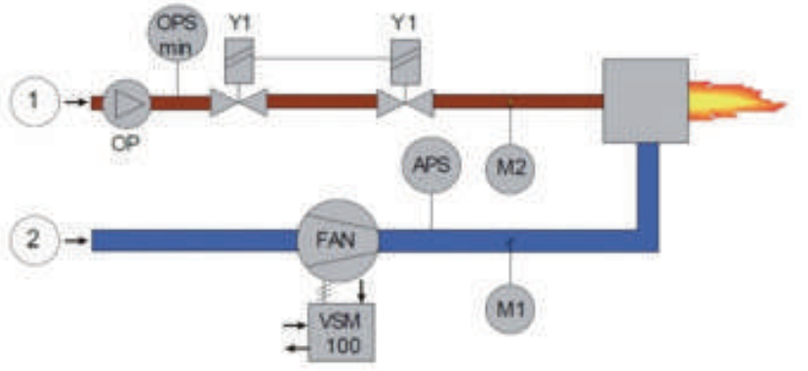
TECHNICAL SPECIFICATIONS

- Allows controlling maximum 3 air, fuel actuators depending on the application,
- Gas emission improved with precise air-fuel adjustment,
- Energy savings,
- Automatic improvement against combustion failures caused by varying barometric conditions with CO/O2 sensor connectivity,
- Fan motor inverter connection capability
- Profibus/ModBus interface connection capability,
- Easy adjustment with simplified user menu and display of fault history

SAMPLE SYSTEM DIAGRAM



Modulation gas burner with optional combustion air fan rotation controller



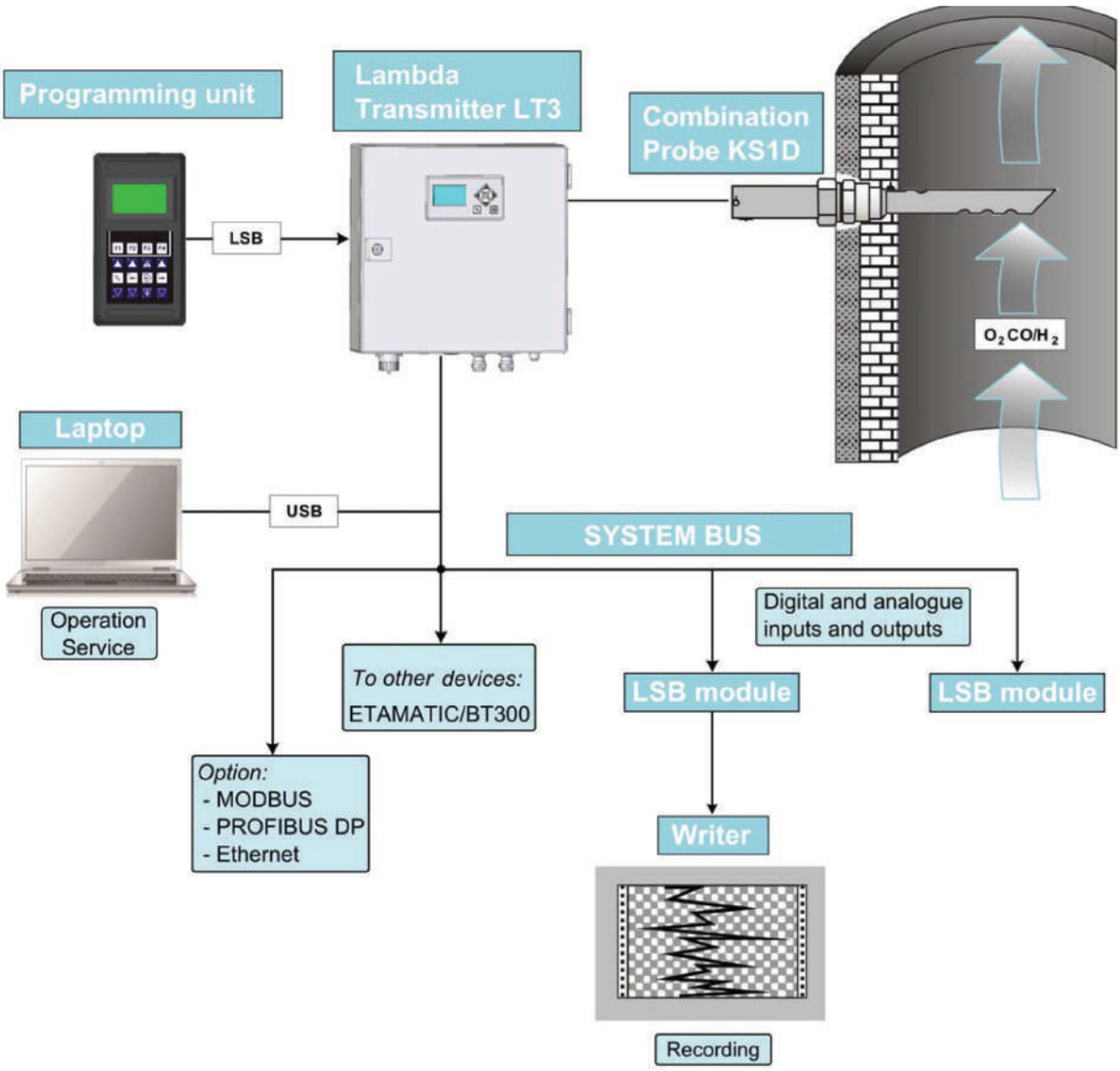
Modulation liquid fuel burner with optional combustion air fan rotation controller

O_2-CO COMBUSTION MANAGEMENT SYSTEM

Micro-processor based combustion management system is a complicated system that optimizes the most suitable air/fuel ratio with oxygen and/or carbon monoxide trim controlled, closed control logic mechanism. O2-CO combustion management system aims at maximum combustion efficiency and minimum emission values. With the aid of flue-mount flue gas sensor and transmitters, it measures the O2 and CO amounts, and optimizes the combustion by taking into account the permitted emission values according to the boiler's heat demand.

Advantages of the O2-CO combustion method system:

- Optimized combustion not affected by seasonally changing barometric conditions,
- Automatically controlled combustion with a combustion curve that is optimized in all operating conditions,
- Provides more fuel savings with high combustion efficiency.

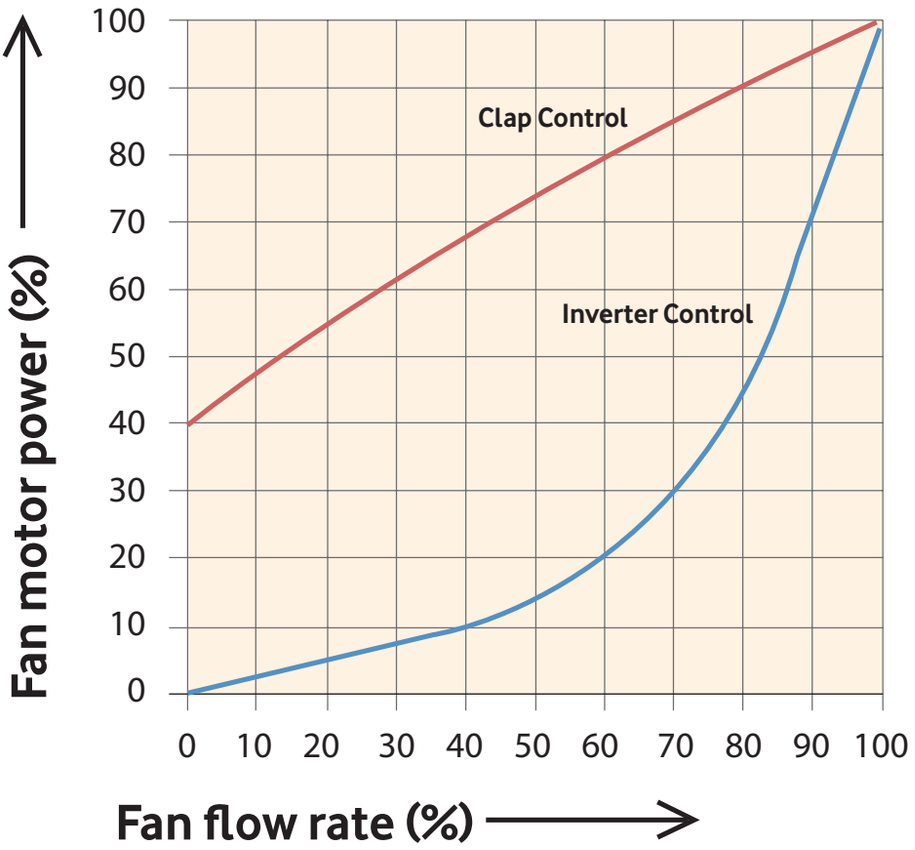


FAN SPEED CONTROL

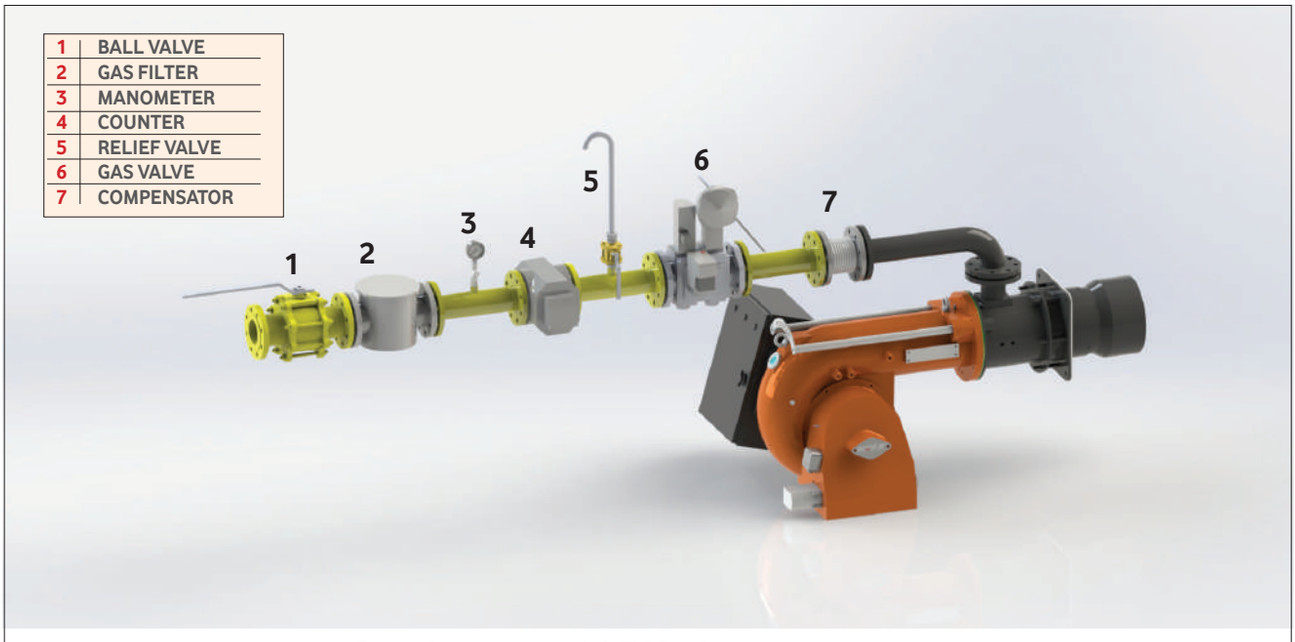
The inverter installed to the combustion air fan motor of the burner generates air as required by controlling the power supply frequency of the fan motor, and provides savings in energy costs. The frequency controlled systems pay for themselves within few years.

Advantages of the speed controlled systems:

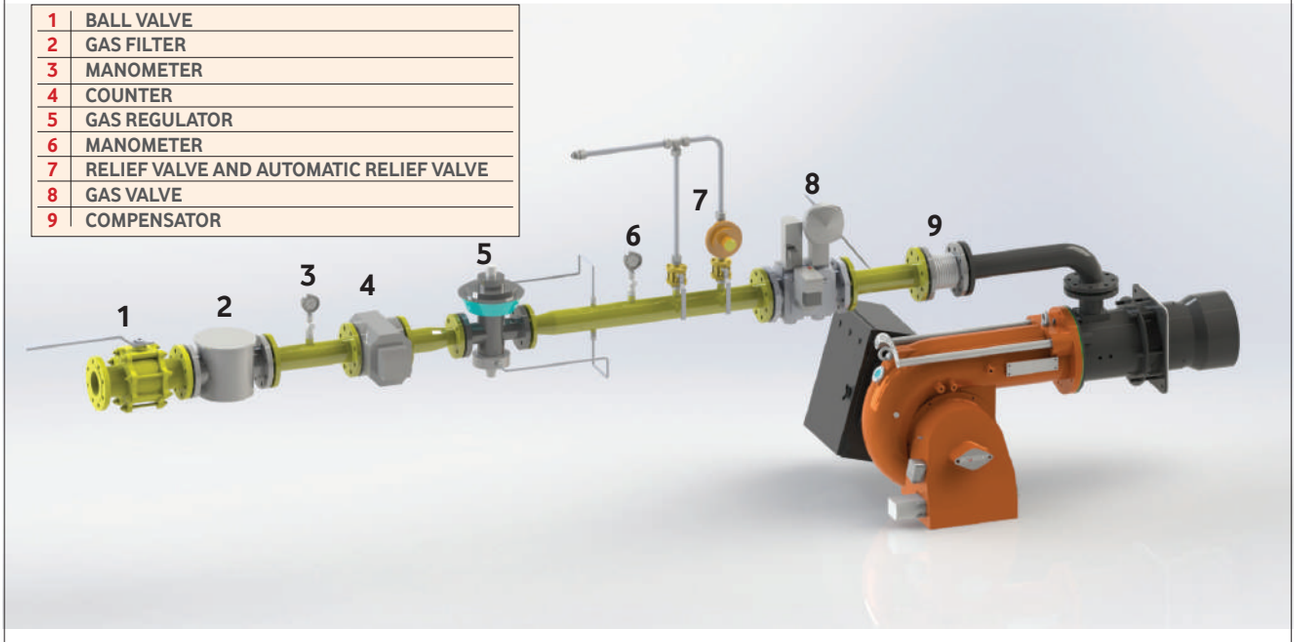
- Electrical energy savings,
- Extension of motor life with adjustable acceleration and deceleration,
- Lower noise operation



- The gas line must be selected according to the operating conditions, burner capacity, and the operating pressure. It can be supplied as a disassembled gas line with optional accessories such as counter, gas leak device, etc. or as an assembled gas line.
- Flanged and threaded connections may differ depending on the capacity and gas pressure.



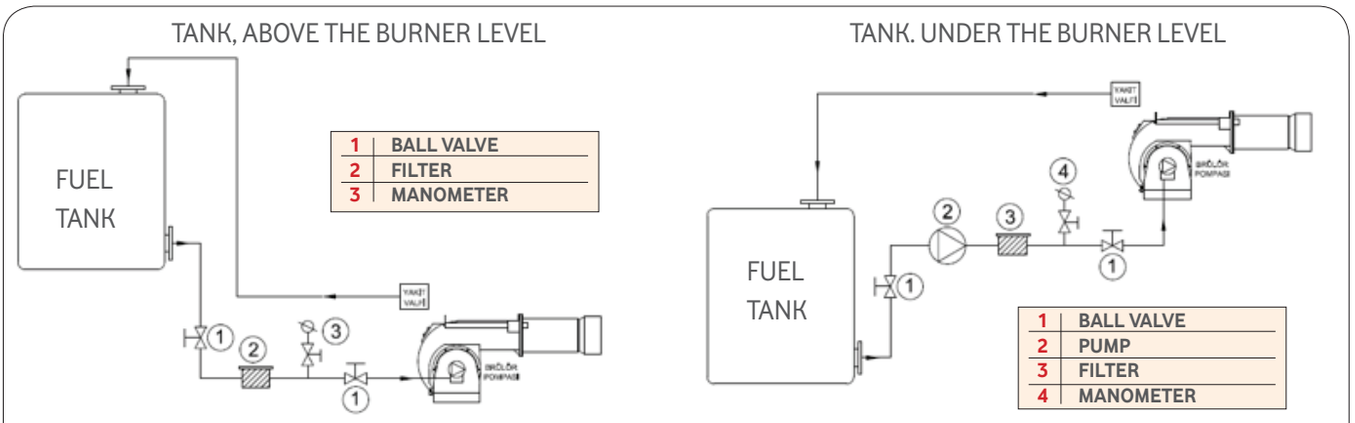
Sample system with 300 mbar gas pressure



Sample system with >300 mbar gas pressure

LIGHT OIL PUMPING STATION

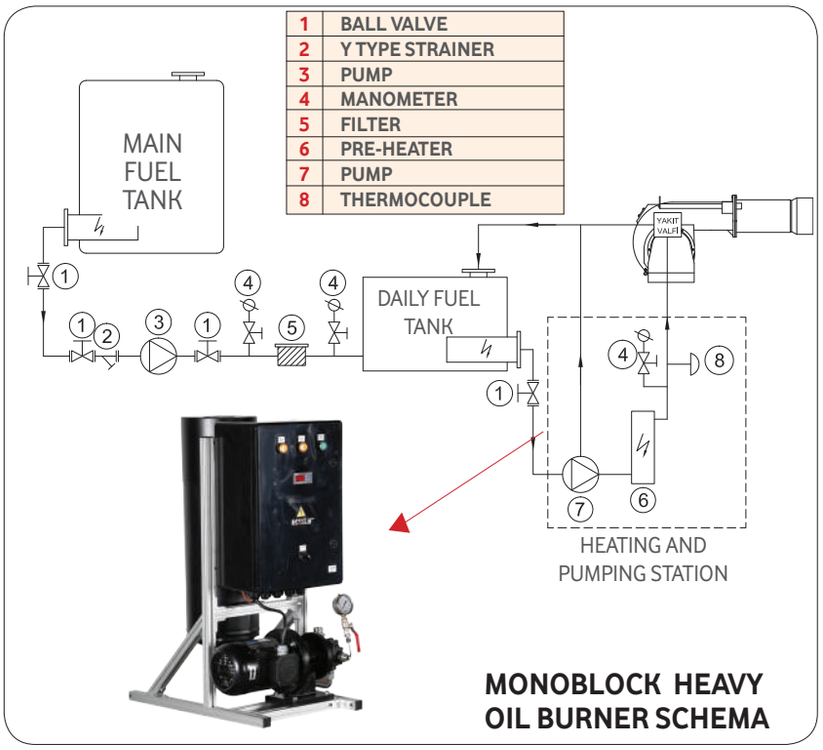
- The fuel transfer unit that ensures fuel transfer to the burner at the appropriate pressure, flow rate, and cleanliness.
- Optionally, these systems can be single or with redundant filter-pump. Auxiliary systems provides maintenance and operating advantages.



Modulating Monoblock Light Oil Burner Circuit Diagram

HEAVY-OIL HEATING and PUMPING STATION

- The filtering-heating-pumping unit that ensures that the fuel at 50-60°C from transfer line reaches the temperature that will allow it to achieve the combustion viscosity value required for its smooth combustion (120-135°C), and then ensures its transmission in the burner to use the fuel at the required pressure.
- In monoblock fuel-oil burners, the heating and pumping group includes a fuel pump, a pot heater, a temperature transmitter and a manometer.



MONOBLOCK HEAVY OIL BURNER SCHEMA

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HEAD OFFICE

Address : Esentepe Mah. Milangaz Cad. No: 75 Kat: 3 Monumento Plaza Kartal / İSTANBUL / TURKEY
Phone : +90 216 442 93 00 (pbx) Fax. : +90 216 370 45 03
Mail : info@ecostarburners.com
Web : www.ecostarburners.com

FACTORY

Address : Türkgücü OSB Bülent Ecevit Bulvarı No: 11 Çorlu / TEKİRDAĞ / TURKEY
Phone : +90 282 685 44 80/81 Fax. : +90 282 685 42 09

Update and Printing date: December / 2019