

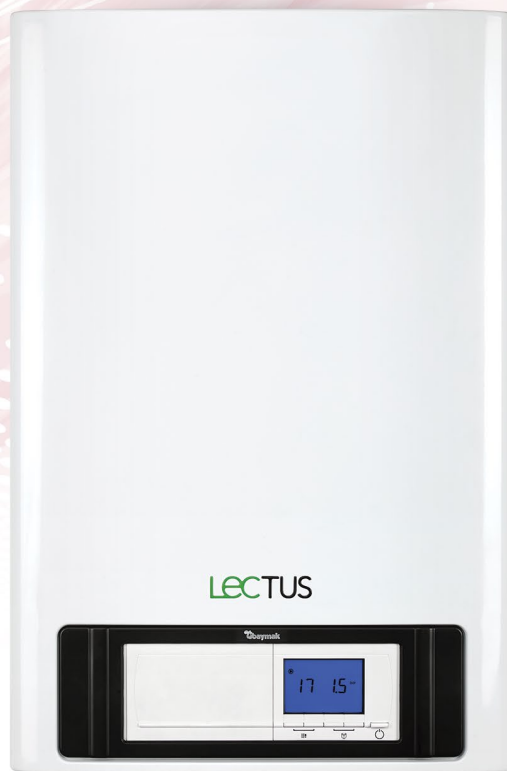
CENTRAL  
HEATING  
SYSTEMS

## LECTUS / LECTUS PLUS Series / Wall-Hung Condensing Boiler



# LECTUS Series

Wall-Hung Condensing Boiler



- Lectus 65, 90, 115 condensing boiler models
- Boiler efficiency up to 111.3%\*
- Modulation range of 16-100%\*\*
- Cascade operation up to 15 boilers
- Environmentally friendly with low emission
- Space-saving compact dimensions
- Silent boiler operating at 53 dB\*\*\*

\* DIN4702-8, 40/30°C (for Lectus 65)

\*\* For Lectus 115

\*\*\* For Lectus 65



## Lectus Boiler

A wall-hung condensing boiler is mountable either on a wall or a construction with the single-piece Al-Mg-Si alloy cast heat exchanger, fiber-coated stainless steel burner, fan assembly with premix modulation, and electrical control assembly with LCD display. The top side of the boiler is equipped with a flue connection at a diameter of 100/150 mm to enable a flue gas outlet and air intake. The connection to discharge the condensate generated in the heat exchanger is placed at the bottom of the boiler. Flue can be applied as vented, hermetic, or semi-hermetic arrangements.

The boiler water pressure is between 0.8 bar and 6 bar. The boiler activates the boiler control system via the modulating fan depending on the heat demand. Lectus boilers are natural gas- and LPG-fired boilers. It features ultra-low NO<sub>x</sub> levels and minimum CO emission. The digital LCD display on the standard control panel displays the error codes and boiler parameters.

LECTUS condensing boilers bear the CE marking in compliance with the following directives;

- Gas Directive (EU) 2016/426
- Efficiency Directive 92/42/EEC
- Electromagnetic Compatibility Directive 2014/30/EU
- Low Voltage Directive 2014/35/EU

### Lectus Wall-Hung Condensing Boiler Models

- Lectus 65
- Lectus 90
- Lectus 115

## Why Choose Condensing Boiler?

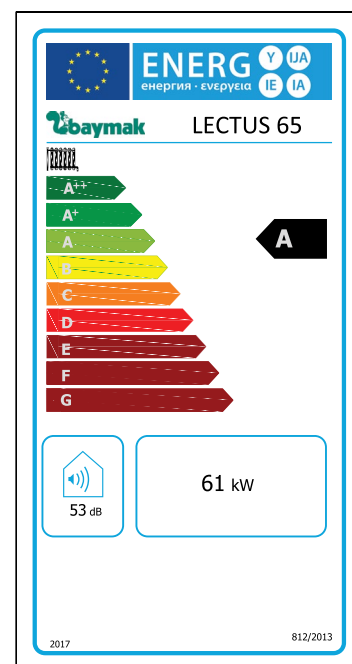
Condensing boilers are more efficient than conventional boilers since the latent heat in condensation is recovered by a special heat exchanger condensing the steam, and the modulating fan on the condensing boiler ensures constant efficiency for each capacity demand of the combustion process. Furthermore, the heat losses during the combustion and from the heating installation are very low due to the low flue temperature (flue temperatures of 45-50°C for condensing boiler, 120-140°C for conventional boiler). The emissions are lower than the normal combustion by 80% for CO and 90% for NO<sub>x</sub>. Thus, it saves natural energy sources and protects the environment. The annual CO<sub>2</sub> emission of high-efficiency condensing boilers is 20% greater than the standard-efficiency boilers.





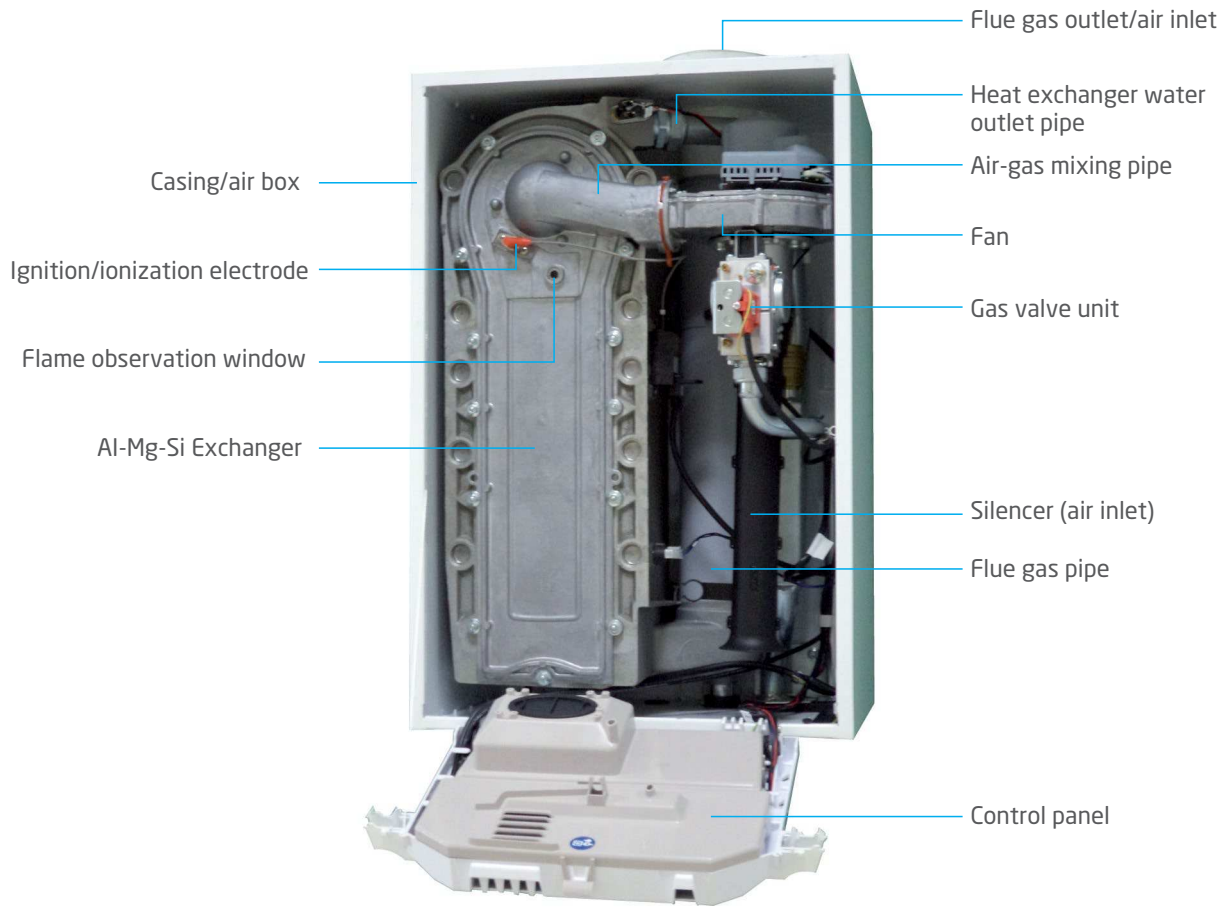
## Lectus Boiler Specifications

- Lectus wall-hung condensing boilers - single-piece Al-Mg-Si cast heat exchanger series
- High combustion efficiency with Premix stainless steel burner and modulating fan
- Water exits the installation at 40°C and returns at 30°C Efficiency up to 111.3% according to DIN 4702-8 norm (Lectus 65)
- Integrated flue back flow valve
- Cascade operation up to 15 boilers
- Boiler control modulating at a range of 16% - 100% (Lectus 115)
- High combustion efficiency and low emission with frequency-controlled fan (NOx < 39 mg/kWh)
- Silent operation at 53 dB (Lectus 65)
- Digital LCD display, menu-controlled microprocessor boiler control panel
- Siemens control panels enabling viewing and intervening the boiler data on the computer
- Natural gas and LPG options (LPG conversion kit is necessary for Lectus 90 boiler.)
- Boiler protection by overheating safety thermostat when the water temperature is extremely high (110 °C)
- Saving space with compact dimensions of 750mmx500mmx500mm (HxWxD)
- A heating circuit operating temperature range of 20°C - 90°C
- Maintenance convenience with cleaning brush
- Hermetic, semi-hermetic or vented arrangements
- Anti-freezing



LECTUS 65

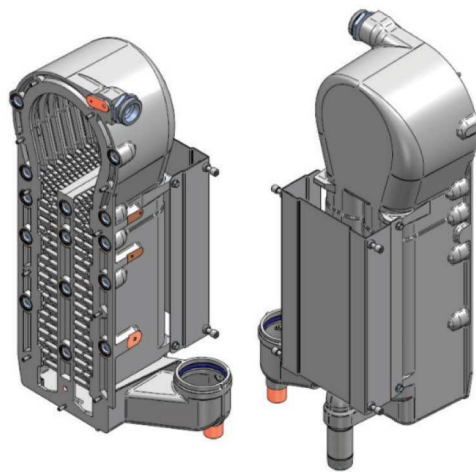
## Boiler Technical Specifications



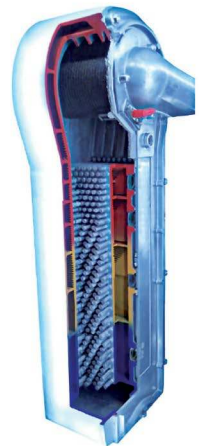
Modulating Fan,  
Gas Valve Assembly



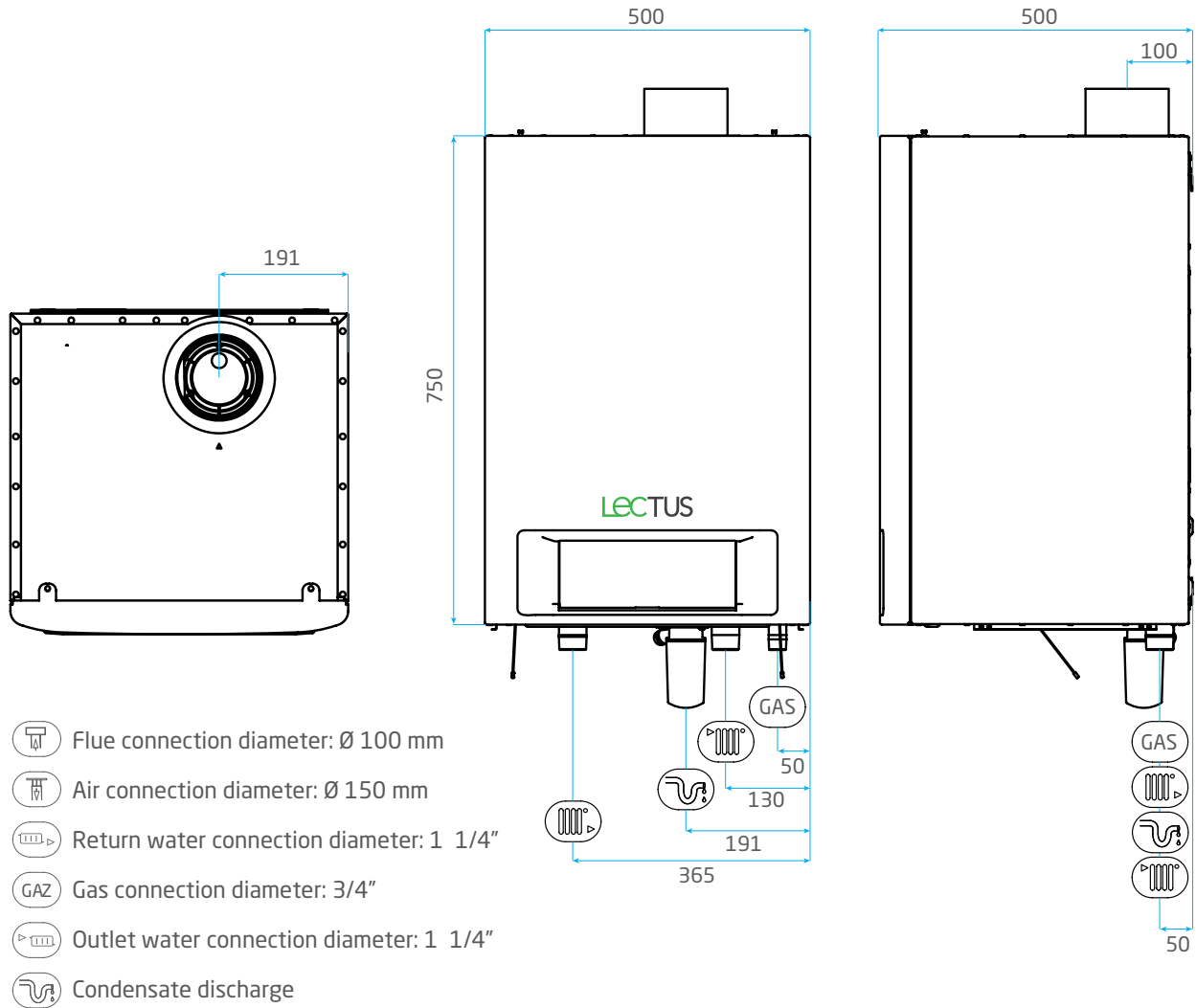
Fiber Coated  
Stainless Steel Burner



Al-Mg-Si Cast Exchanger Casing

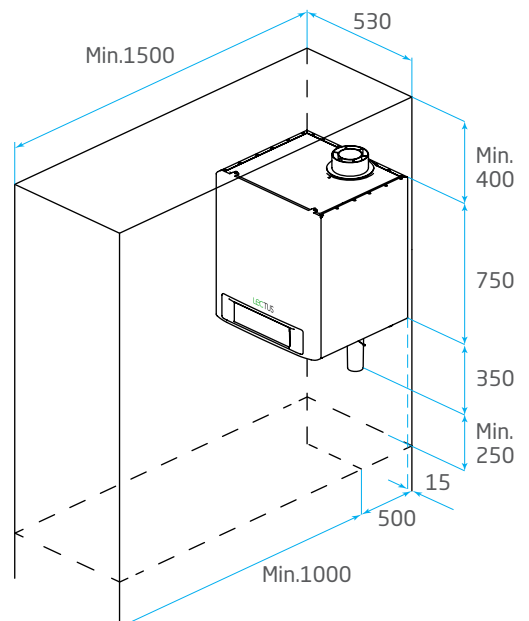


## Boiler Dimensions



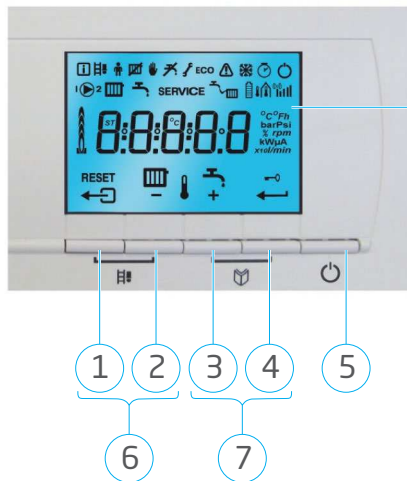
## Lectus Boiler Positioning

The boiler should be installed considering the dimensions on the right. In Lectus boilers, a minimum 1000 mm distance should be left under the boiler if using Baymak hydraulic and collector set.



\* All dimensions are given in mm.

## Lectus Boiler Control Panel



1. [Exit] or **RESET** button
2. Heating water button or [-] button
3. [+] button
4. [Enter] or cancel key lock
5. On/Off button
6. [Flue sweeping button] (press buttons 1 and 2 at the same time)
7. [Menu] buttons (press buttons 3 and 4 at the same time)
8. Display

|  |                     |
|--|---------------------|
|  | Information         |
|  | Flue cleaning       |
|  | User                |
|  | Radiator water off  |
|  | Manual use          |
|  | Hot water use off   |
|  | Service/maintenance |

|            |                             |
|------------|-----------------------------|
| <b>ECO</b> | Economic use                |
|            | Failure information         |
|            | Boiler anti-freezing active |
|            | Clock menu                  |
|            | On/Off                      |
|            | Wireless system connection  |
|            | Block key active            |

|  |                                    |
|--|------------------------------------|
|  | Open area sensor                   |
|  | Pump use                           |
|  | Boiler radiator use                |
|  | Burner level, full or partial load |
|  | Boiler hot water use               |
|  | Water filling system               |

## Technical Data Sheet

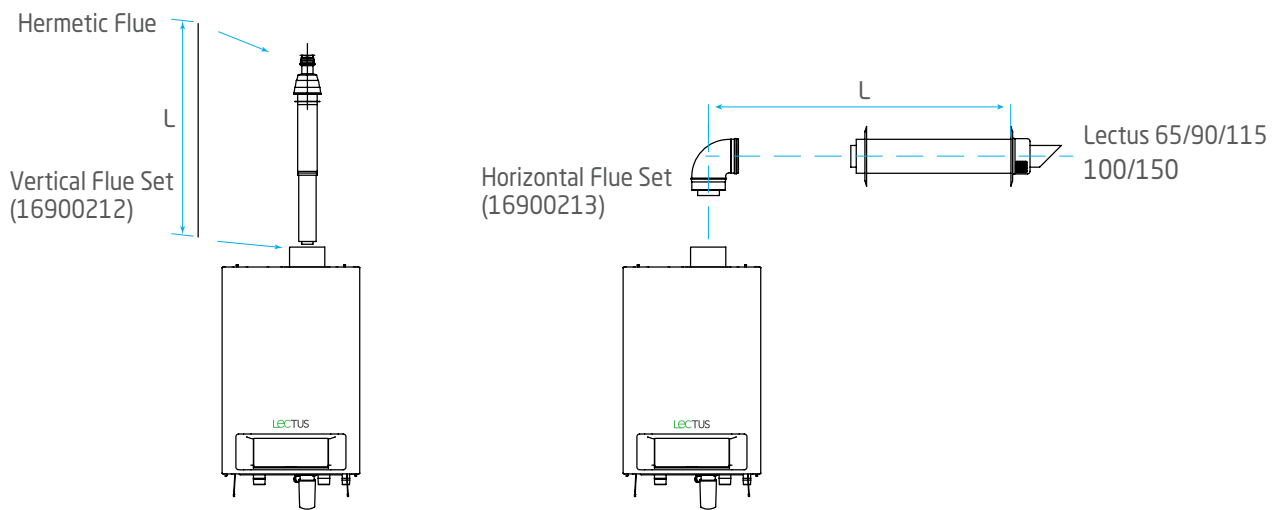
| SPECIFICATIONS                                                         | UNIT    | LECTUS 65                     | LECTUS 90   | LECTUS 115   |
|------------------------------------------------------------------------|---------|-------------------------------|-------------|--------------|
| ErP DATA                                                               |         |                               |             |              |
| Seasonal space heating energy efficiency class                         |         | A                             | -           | -            |
| Nominal heat power (Prated)                                            | kW      | 62                            | 84          | 107          |
| Seasonal space heating energy efficiency                               | %       | 94                            | -           | -            |
| Annual energy consumption                                              | GJ      | 187                           | -           | -            |
| Sound power level                                                      | dB(A)   | 53                            | 60          | 59           |
| Useful heat output at nominal heat output and high temperature (P4)    | kW      | 61,5                          | 20,5        | 103,9        |
| Useful heat output at 30% nominal heat output and low temperature (P1) | kW      | 20,5                          | 27,9        | 34,7         |
| Seasonal space heating efficiency (ηs)                                 | %       | 94                            | -           | -            |
| Useful efficiency at nominal heat output and high temperature (η4)     | %       | 89,4                          | 88,2        | 87,5         |
| Useful efficiency at 30% nominal heat output and low temperature (η1)  | %       | 99,5                          | 97,4        | 97,3         |
| Power consumption - full load (elmax)                                  | kW      | 0,088                         | 0,125       | 0,199        |
| Power consumption - partial load (elmin)                               | kW      | 0,023                         | 0,020       | 0,045        |
| Power consumption - in standby mode (Psb)                              | kW      | 0,006                         | 0,004       | 0,007        |
| GENERAL INFORMATION                                                    |         |                               |             |              |
| Control system                                                         |         | Modulation ON / OFF, (0-10 V) |             |              |
| Nominal capacity 80/60°C Minimum-Maximum                               | kW      | 12,0 - 62,0                   | 14,1 - 84   | 16,6 - 107,0 |
| Nominal capacity 50/30°C Minimum-Maximum                               | kW      | 13,3 - 65,0                   | 15,8 - 89,5 | 18,4 - 114,0 |
| Efficiency at partial load, according to TS EN norm, 30% load*         | %       | 109,3                         | 110,1       | 107,8        |
| Efficiency at Partial Load 40/30°C**                                   | %       | 111,3                         | 108,9       | 108,1        |
| Modulation Range                                                       | %       | 20 - 100                      | 17 - 100    | 16 - 100     |
| Weight                                                                 | kg      | 61                            | 69          | 70           |
| Dimensions (HxWxD)                                                     | mm      | 750x500x500                   |             |              |
| GAS TYPE AND COMBUSTION PRODUCT VALUES                                 |         |                               |             |              |
| Gas inlet pressure G20 (Gas H)                                         | mbar    | 20                            |             |              |
| Gas inlet pressure LPG                                                 | mbar    | 30                            |             |              |
| Flue gas temperature Partial - Full                                    | °C      | 30 - 68                       | 30 - 68     | 30 - 72      |
| Flue gas mass flow rate Minimum-Maximum                                | kg/h    | 21 - 104                      | 28 - 138    | 36 - 178     |
| CO₂ content                                                            | %       | 9,0                           | 9,0         | 9,0          |
| NOx emission (EN483)                                                   | mg/kWh  | <32                           | <39         | <39          |
| Gas consumption (Natural gas) Minimum-Maximum                          | m³ / h  | 1,3 - 6,6                     | 1,5 - 9,1   | 1,8 - 11,7   |
| Fan pressure                                                           | Pa      | 100                           | 160         | 220          |
| HEATING CIRCUIT VALUES                                                 |         |                               |             |              |
| Boiler water volume                                                    | l       | 6,5                           | 7,5         | 7,5          |
| Boiler pressure loss (ΔT = 20K)                                        | mbar    | 130                           | 140         | 250          |
| Boiler water operating pressure Minimum-Maximum                        | bar     | 0,8 - 6                       |             |              |
| Boiler maximum water temperature Maximum                               | °C      | 110                           |             |              |
| Boiler operating water temperature range Minimum-Maximum               | °C      | 20 - 90                       |             |              |
| ELECTRICAL VALUES                                                      |         |                               |             |              |
| Boiler power supply                                                    | V AC-Hz | 230 / 50                      |             |              |
| Electrical power Minimum-Maximum                                       | w       | 23 - 88                       | 20 - 125    | 45 - 199     |
| Power consumption in standby mode                                      | w       | 6                             | 4           | 7            |
| Electrical protection class                                            | IP      | X4D                           |             |              |
| OTHER SPECIFICATIONS                                                   |         |                               |             |              |
| Standard control panel                                                 |         | Yes                           |             |              |
| Ignition system                                                        |         | Electronic                    |             |              |
| Failure detection and warning system                                   |         | Yes                           |             |              |

\* At a return water temperature of 30°C

\*\* According to DIN 4702-8 norm, 40/30°C



## Lectus Flue Arrangements



C13, C33, C43, C63, C93 flue types for hermetic arrangement.

### Flue Distance for Hermetic Arrangement

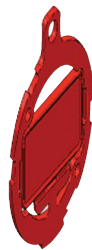
| Boiler Model          | Maximum Length L (meter) |
|-----------------------|--------------------------|
| Lectus 65 100/150 mm  | 13                       |
| Lectus 90 100/150 mm  | 13                       |
| Lectus 115 100/150 mm | 7                        |

### Losses from Elbows in Hermetic Flue

| Elbow Type | Lost Length L (meter) |
|------------|-----------------------|
| 45° Elbow  | 1                     |
| 90° Elbow  | 2                     |

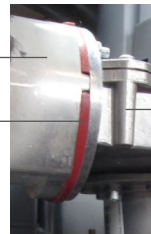
## Back Flow Valve

In Lectus Wall-Hung Condensing Boilers, the back flow valve is placed between the fan and heat exchanger conveyor and is cleanable.

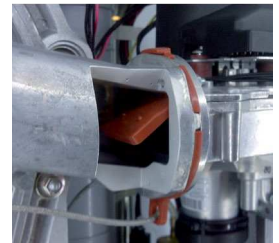


Heat Exchanger  
conveyor

Valve



Fan



## Condensate Discharge

Flue gases are contained by the condensate discharge system, and condensate should be discharged in an unexposed area. Practically, a maximum of one liter water is formed per cubic meter of natural gas consumed. In practice, it corresponds to the following amounts;

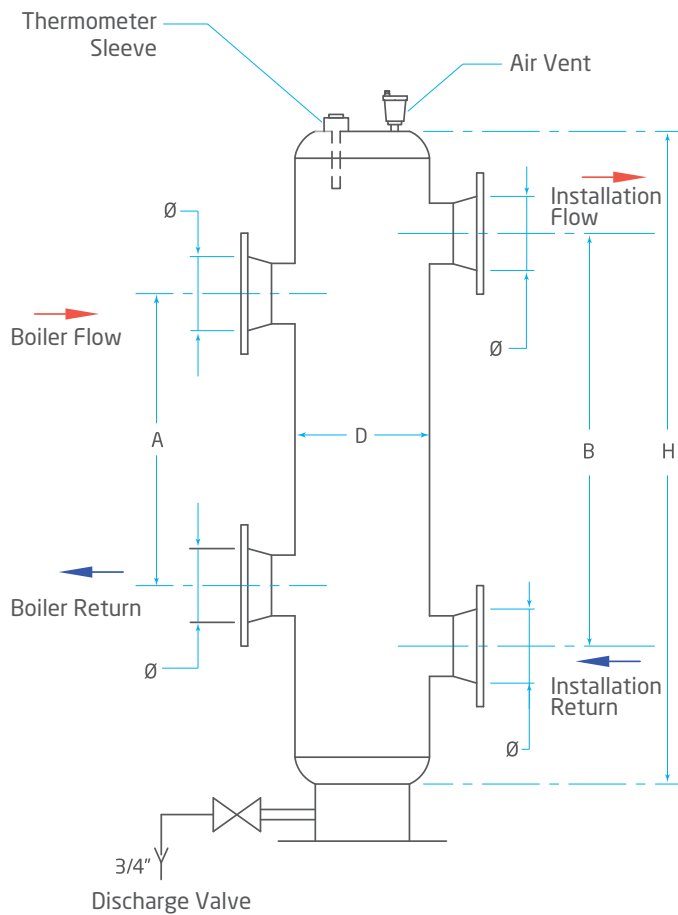
- Condensation of nearly 7.5-liter water per one hour operation of Lectus 65
- Condensation of nearly 10-liter water per one hour operation of Lectus 90
- Condensation of nearly 12.5-liter water per one hour operation of Lectus 115

The pH of the condensate that is formed in condensing boiler and flue gas line during heating is between 3 and 4. This condensate should be discharged under optimal conditions. The condensate formed in condensing boilers with a nominal heating power of up to 200 kW can be discharged into the wastewater network without neutralization. The condensate formed in condensing boilers with a nominal heating power of above 200 kW should be neutralized to increase the pH to 6.5 - 9 and then directed to the sewer.



Neutralization Container (Optional)  
(16999012)

## Hydraulic Separator Dimensions



| System Capacity (kW) | A (cm) | B (cm) | H (cm) | D Hydraulic Separator Diameter (mm) | Ø Inlet Outlet Diameter (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                          |

## Advantages

- No hydraulic interaction between boiler circuit and heating circuit.
- Boilers and heating zones operate under optimum water flow rate.

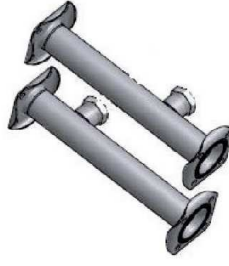
## Dimensioning of Hydraulic Separator

- Hydraulic separator should be correctly dimensioned for proper operation.
- Boiler outlet water temperature should be measured at the top of the hydraulic separator.
- To do this, a 1/2" sleeve should be welded on the container, and an air relief cock should be placed.
- The dimensions given in the figure are the minimum required dimensions.

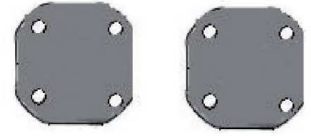
## Hydraulic Assembly Connection Set



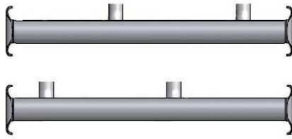
Hydraulic Connection Set  
(16900227)



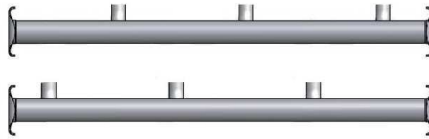
Single Boiler Collector Assembly  
(16900208)



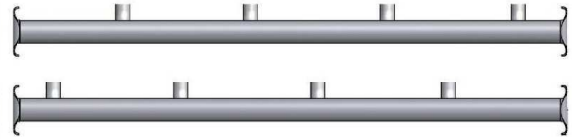
Blind Plug Assembly  
(16900223)



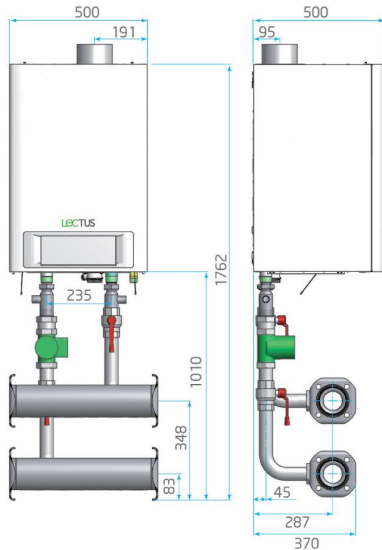
Double Boiler Collector Assembly  
(16900209)



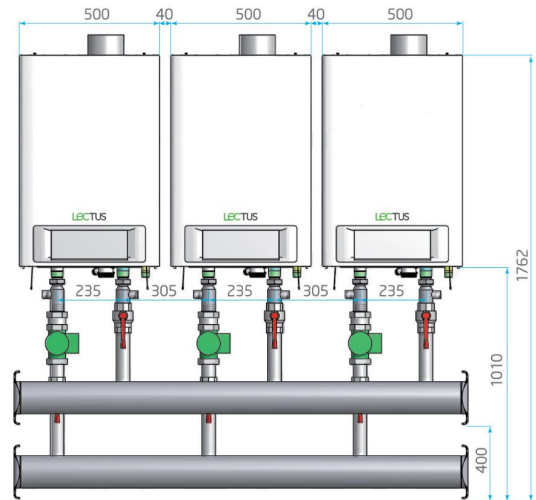
Triple Boiler Collector Assembly  
(16900221)



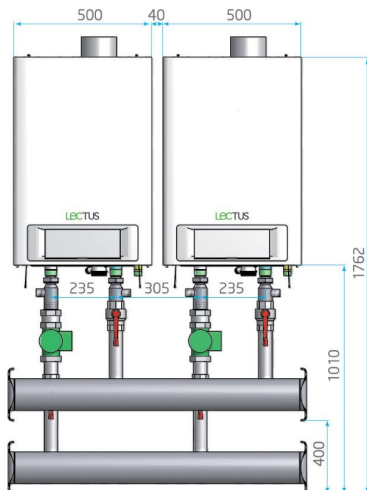
Quadruple Boiler Collector Assembly  
(16900222)



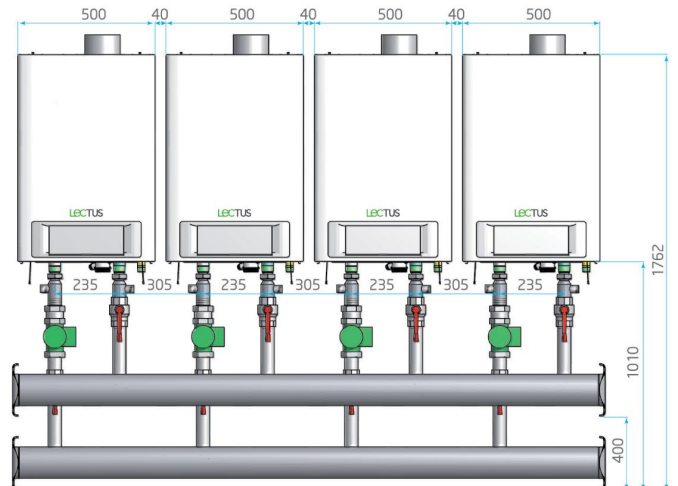
Single Assembly Connection Set



Triple Assembly Connection Set



Double Assembly Connection Set



Dörtlü Grup Bağlantı Seti

## Single Control Accessories



### Baymak Programmable Wired Room Thermostat (16900402)

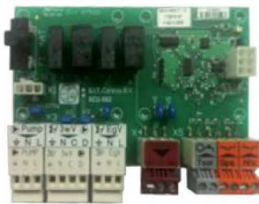
Baymak room thermostat is an OpenTherm timer thermostat with various advanced functions.

- Simple and precise control
- Illuminated light blue LCD display
- Multi-functional help menu
- Immediate intervention possibility
- Customizable display



### Baymak Zone Control (16910076)

- Two mixing valve control



### Boiler Pump and Boiler Pump Control Panel (SCU-S02) (09120033)

- Installation pump control
- Boiler pump control



### SCU-X03 Modulating Pump Card (19170095)

- Control of the modulating pump on the installation



### Baymak Outdoor Air Sensor (16900224)

- Protection against external conditions by protective cover
- Operating at a temperature range of -60°C and 62°C

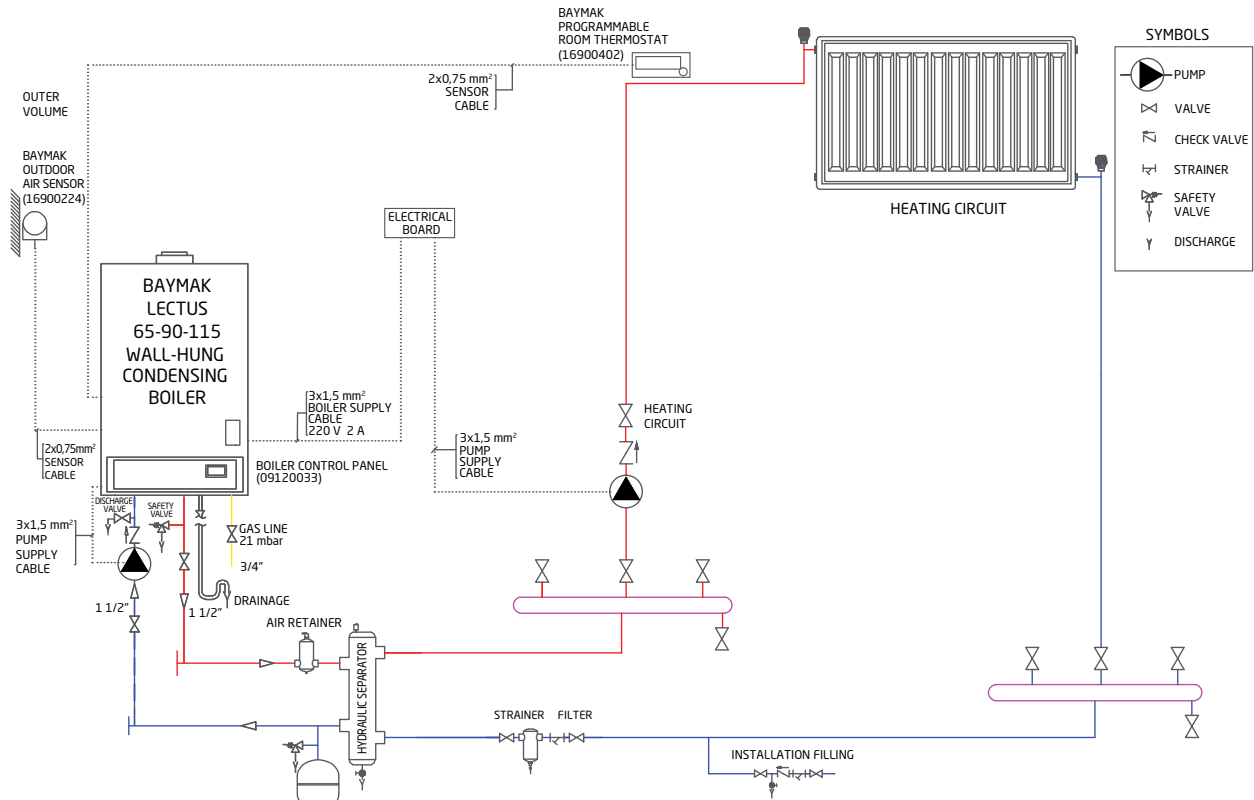


### Baymak Boiler Sensor (16910078)

- Submersible temperature sensor
- NTC12K0hm
- Operating at a temperature range of 10°C and 90°C

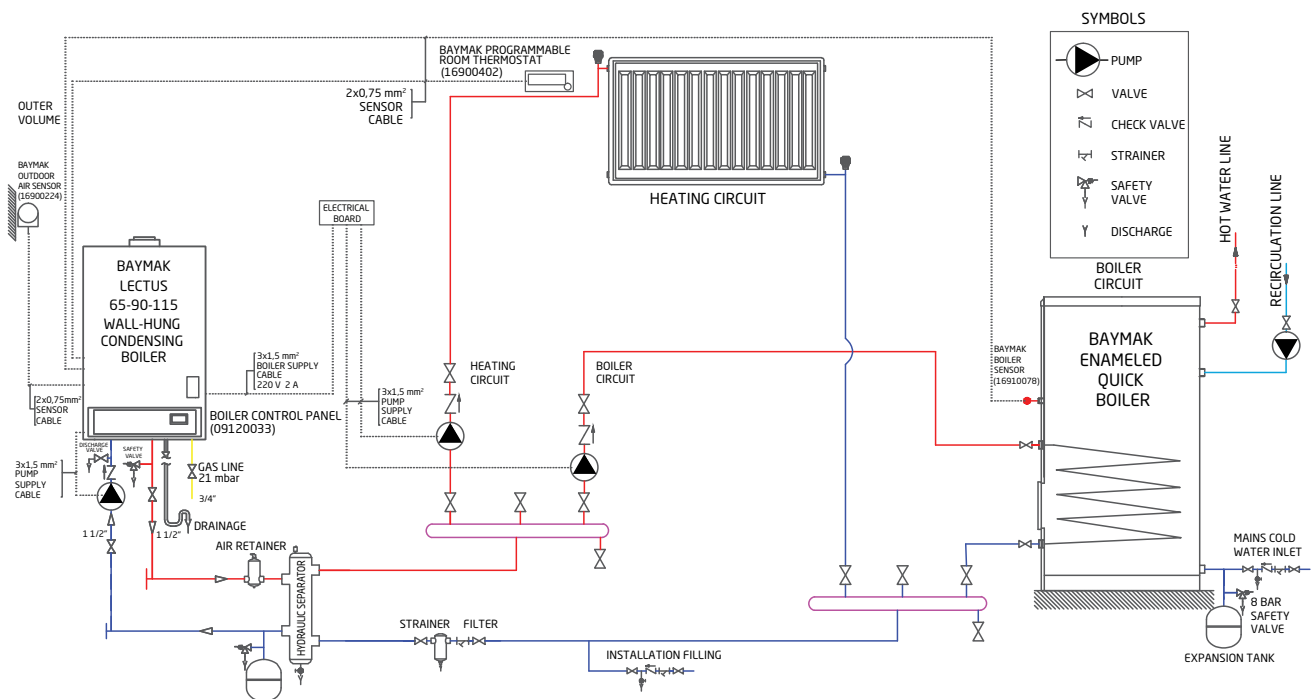


## Single Boiler Radiator Circuit



- THE AIR SEPARATOR, STRAINER, HYDRAULIC SEPARATOR SHOULD BE MOUNTED AS SHOWN IN THE SYSTEM DIAGRAM ABOVE, OR TRIPLE PRODUCT SETS SHOULD BE USED.
- THE PIPE DIAMETERS ARE FOR STEEL PIPE. A PLASTIC PIPE SHOULD NOT BE USED BEFORE THE HYDRAULIC SEPARATOR.
- THE SAFETY VALVE DISCHARGES, CONDENSATE DRAINS, AND DISCHARGE VALVES SHOULD BE EXTENDED TO THE WATER COLLECTION CHANNEL VIA A DRAINAGE LINE.
- THE INSTALLATIONS AT THE BOTTOM OF THE BOILER SHOULD BE CONNECTED USING UNION FITTINGS.

## Single Boiler, Radiator and Heating Circuit



- THE AIR SEPARATOR, STRAINER, HYDRAULIC SEPARATOR SHOULD BE MOUNTED AS SHOWN IN THE SYSTEM DIAGRAM ABOVE, OR TRIPLE PRODUCT SETS SHOULD BE USED.
- THE PIPE DIAMETERS ARE FOR STEEL PIPE. A PLASTIC PIPE SHOULD NOT BE USED BEFORE THE HYDRAULIC SEPARATOR.
- THE SAFETY VALVE DISCHARGES, CONDENSATE DRAINS, AND DISCHARGE VALVES SHOULD BE EXTENDED TO THE WATER COLLECTION CHANNEL VIA A DRAINAGE LINE.
- THE INSTALLATIONS AT THE BOTTOM OF THE BOILER SHOULD BE CONNECTED USING UNION FITTINGS.

## Cascade System



A cascade system is a system that consists of two or more pieces of equipment connected to an installation to achieve higher thermal powers. In LECTUS Cascade systems, the RVS cascade control panel enables modulated boiler operation to provide thermal power to the system as needed. Cascade systems save fuel in power consumption and enable simultaneous boiler aging. Thus, boiler service and maintenance convenience is ensured. Baymak LECTUS boilers can be controlled by connecting maximum 15 boilers in a cascade configuration.



## Cascade Control Accessories

Lectus boilers are operated from RVS 283 control panel.  
The following sensors control the operation of the cascade system.



### RVS 283 Cascade Control Panel (09120032)

- Boiler control panel, cascade operation with up to 15 pieces of equipment
- Heat generation and distribution control, timing
- Energy-saving
- Easy and quick use with the user interface supporting Turkish characters
- Simultaneous control of the boiler, zone with 2 mixing valves, and direct circuit
- Solar collector control
- Auxiliary relay and sensor outlets
- Possibility to connect to and control the equipment on the computer via the OCI 700 tool
- Possibility to connect additional module, possibility to add equipment for the mixing valve zone



### RVS 21 Mod BUS Cascade Control Panel (100020681)

- Compatibility with OCI350.01/101 Interface module and Mod BUS connections,
- Accessing to operation, status, and failure information via sensors
- Ease of use, legible large LCD display
- Easy access to the menus, control panel with Turkish menu
- Capable of controlling a cascade consisting of a maximum of 15 pieces of equipment
- Flue cleaning function, protection against Legionella bacteria
- Possibility of manual equipment control
- Anti-freezing function
- Easy view of the system information via the info button
- Possibility of individual programming for each heating circuit



### QAC 34 Outdoor Air Sensor (16900066)

- Outdoor air sensors
- NTC 1 K Ohm
- Protection against external conditions by protective cover
- Operating at a temperature range of -50°C and 70°C



### QAD 36 Flow-Return Temperature Sensor (16900077)

- Clamp type temperature sensor
- NTC 10 K Ohm
- Operating at a temperature range of -30°C and 125°C



### OCI 365 Interface (16910171)

- Boiler intercommunication via Opentherm communication
- Failure display on home screen
- Possibility of checking whether the communication has been established or not via the LED light (Continuous flashing light indicates that the connection has been established.)



### QAZ 36 Boiler Hot Water Sensor (16910072)

- Submersible temperature sensor
- NTC 10 K Ohm
- Operating at a temperature range of 0°C and 95°C



### OCI 670/109 Web Server (100022179)

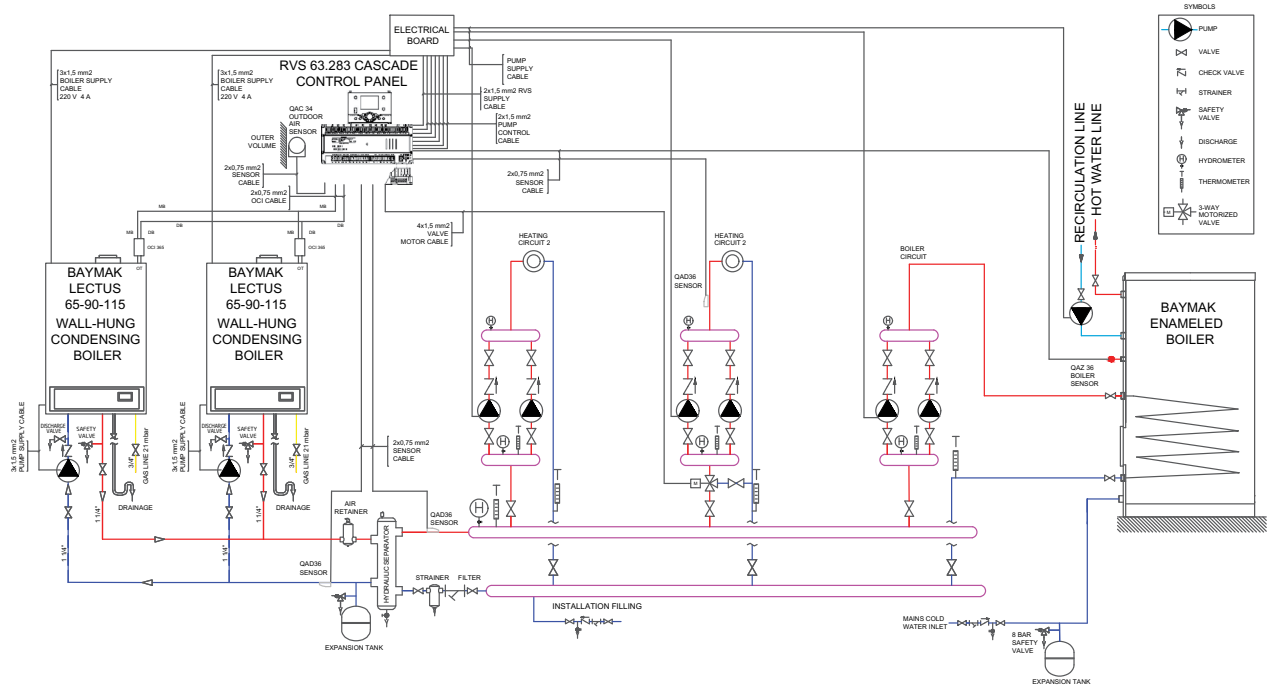
- Possibility of controlling and monitoring the facility on the web
- Possibility of operating via a smart phone or computer
- Possibility of controlling parameters via remote access
- Monitoring the boiler operating status



### QAA 55 Room Thermostat (16910074)

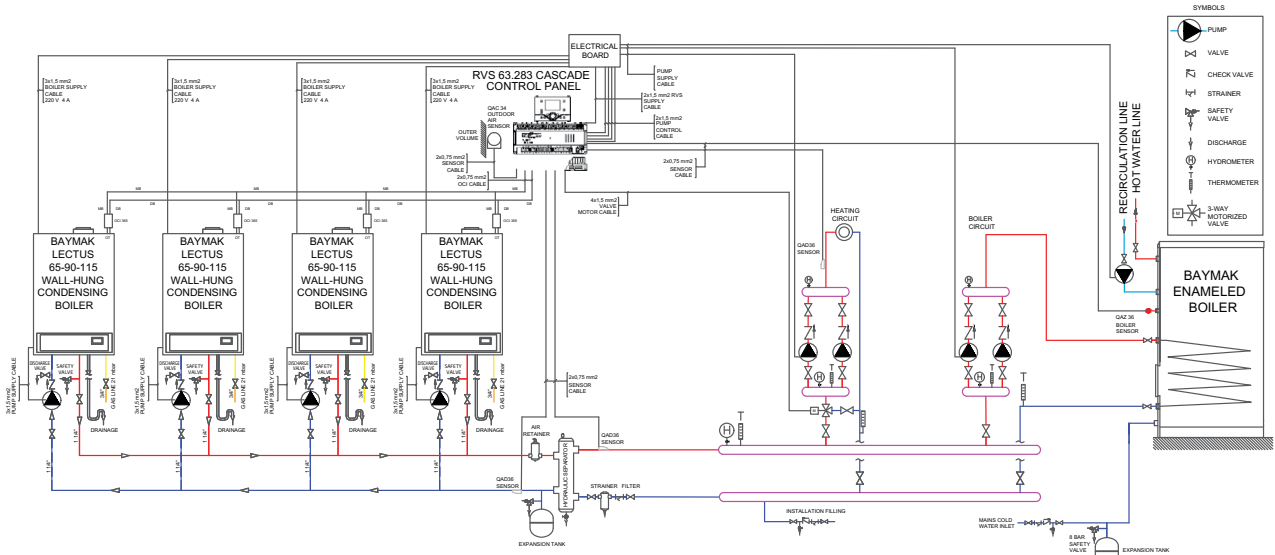
- Possibility of changing the room comfort set value
- Operating mode selection option (automatic operation, continuous operation, etc.)

## Double Cascade Floor Heating Boiler Pool Heating Circuit



- THE AIR SEPARATOR, STRAINER, HYDRAULIC SEPARATOR SHOULD BE MOUNTED AS SHOWN IN THE SYSTEM DIAGRAM ABOVE, OR TRIPLE PRODUCT SETS SHOULD BE USED.
- THE PIPE DIAMETERS ARE FOR STEEL PIPE. A PLASTIC PIPE SHOULD NOT BE USED BEFORE THE HYDRAULIC SEPARATOR.
- THE SAFETY VALVE DISCHARGES, CONDENSATE DRAINS, AND DISCHARGE VALVES SHOULD BE EXTENDED TO THE WATER COLLECTION CHANNEL VIA A DRAINAGE LINE.
- THE INSTALLATIONS AT THE BOTTOM OF THE BOILER SHOULD BE CONNECTED USING UNION FITTINGS.
- THE SYSTEM DIAGRAM DOES NOT CONTAIN DIMENSIONS. PLEASE REFER TO THE BOILER TECHNICAL DOCUMENTATION FOR BOILER DIMENSIONS AND ALL OTHER DETAILS.
- THE CONTROL PANEL OUTPUT IS 230 V. A CONTACTOR SHOULD BE USED TO CONTROL THE PUMP CIRCUITS.
- THE 3-WAY VALVE MOTORS ARE DIRECTLY FED WITH 230 V FROM THE CASCADE CONTROL PANEL.

## Quadruple Cascade Radiator Boiler Circuit



- THE AIR SEPARATOR, STRAINER, HYDRAULIC SEPARATOR SHOULD BE MOUNTED AS SHOWN IN THE SYSTEM DIAGRAM ABOVE, OR TRIPLE PRODUCT SETS SHOULD BE USED.
- THE PIPE DIAMETERS ARE FOR STEEL PIPE. A PLASTIC PIPE SHOULD NOT BE USED BEFORE THE HYDRAULIC SEPARATOR.
- THE SAFETY VALVE DISCHARGES, CONDENSATE DRAINS, AND DISCHARGE VALVES SHOULD BE EXTENDED TO THE WATER COLLECTION CHANNEL VIA A DRAINAGE LINE.
- THE INSTALLATIONS AT THE BOTTOM OF THE BOILER SHOULD BE CONNECTED USING UNION FITTINGS.
- THE SYSTEM DIAGRAM DOES NOT CONTAIN DIMENSIONS. PLEASE REFER TO THE BOILER TECHNICAL DOCUMENTATION FOR BOILER DIMENSIONS AND ALL OTHER DETAILS.
- THE CONTROL PANEL OUTPUT IS 230 V. A CONTACTOR SHOULD BE USED TO CONTROL THE PUMP CIRCUITS.
- THE 3-WAY VALVE MOTORS ARE DIRECTLY FED WITH 230 V FROM THE CASCADE CONTROL PANEL.

# LECTUS PLUS Series

Wall-Hung Condensing Boiler



- Lectus Plus 160 condensing boiler model
- Boiler efficiency up to 108.6%\*
- Modulation range of 20-100%
- Cascade operation up to 15 boilers
- Environmentally friendly with low emission
- Space-saving compact dimensions
- Silent boiler operating at 63 dB

\* DIN4702-8, 40/30°C (for Lectus Plus 160)



## Lectus Plus Boiler

A wall-hung condensing boiler is mountable either on a wall or a construction with the single-piece Al-Mg- Si alloy cast heat exchanger, fiber-coated stainless steel burner, fan assembly with premix modulation, and electrical control assembly with LCD display. The top side of the boiler is equipped with a flue connection at a diameter of 150 mm to enable a flue gas outlet and air intake. The connection to discharge the condensate generated in the heat exchanger is placed at the bottom of the boiler. Flue can be applied as vented, hermetic, or semi-hermetic arrangements.

The boiler water pressure is between 0.8 bar and 4 bar. The boiler activates the boiler control system via the modulating fan depending on the heat demand. Lectus Plus boiler is a natural gas-fired boiler at 21 mbar. It features ultra-low NO<sub>x</sub> levels and minimum CO emission. The digital LCD display on the standard control panel displays the error codes and boiler parameters.

LECTUS PLUS condensing boiler bears the CE marking in compliance with the following directives;

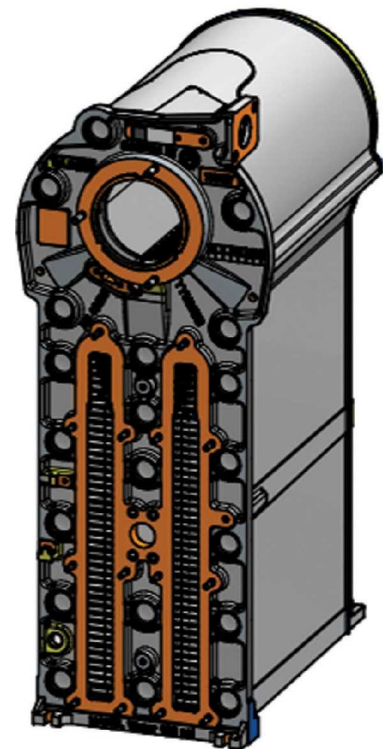
- Gas Appliances Directive 2009/142/EEC
- Efficiency Directive 92/42/EEC
- Electromagnetic Compatibility Directive 89/336/EU
- Low Voltage Directive 73/23/EU

### Lectus Plus Wall-Hung Condensing Boiler Model

- Lectus Plus 160

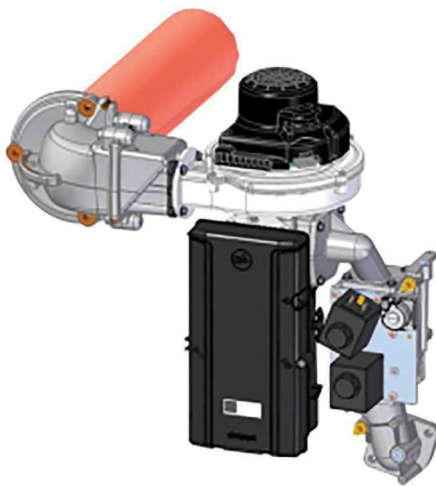
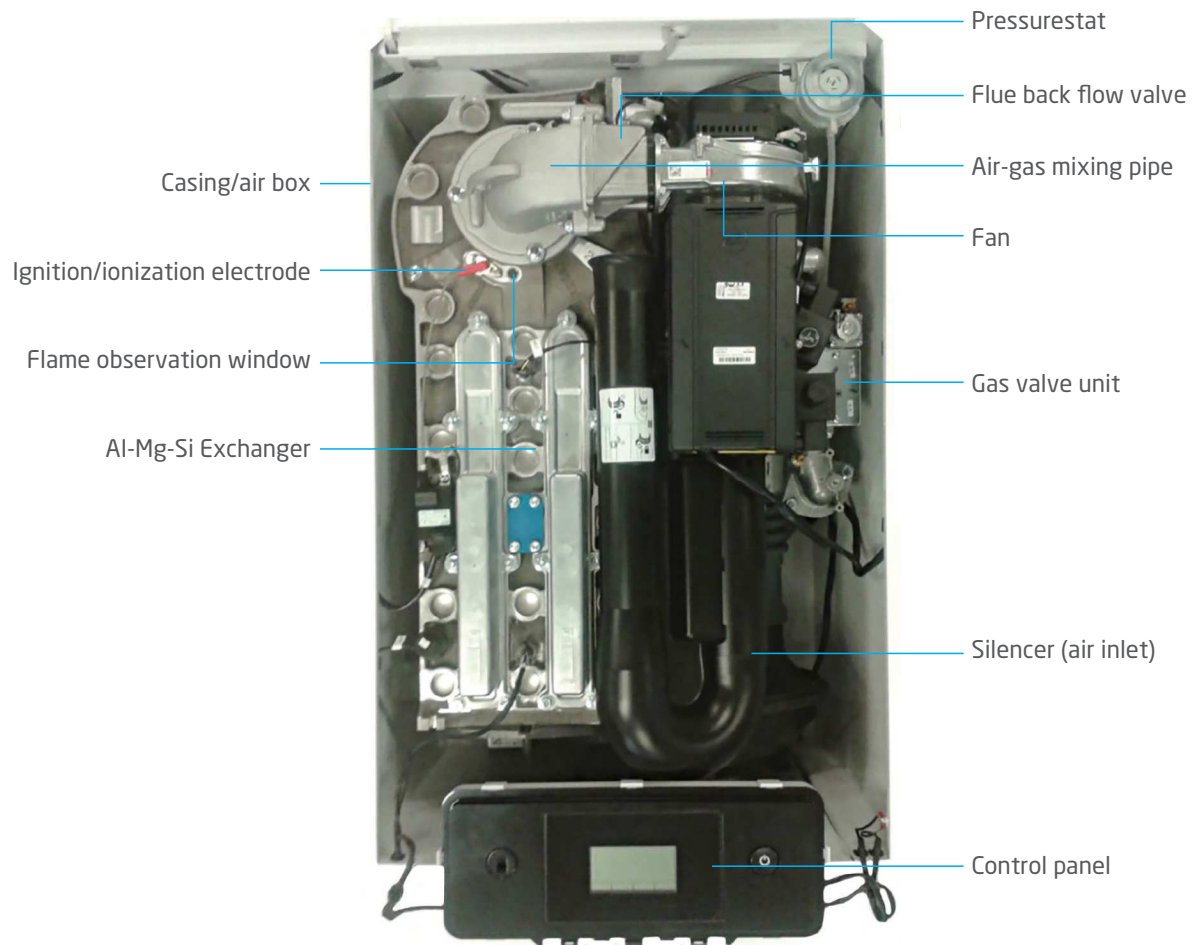
## Lectus Plus Boiler Specifications

- Lectus Plus 160 wall-hung condensing boiler with a single-piece Al-Mg-Si cast heat exchanger
- High combustion efficiency with Premix stainless steel burner and modulating fan
- Water exits the installation at 40°C and returns at 30°C, Efficiency up to 108.6% according to DIN 4702-8 norm
- Integrated flue back flow valve
- Cascade operation up to 15 boilers
- Boiler control modulating at a range of 20% - 100%
- High combustion efficiency and low emission with frequency-controlled fan (NO<sub>x</sub> ≤ 36 mg/kWh)
- Silent operation at 63 dB
- Digital LCD display, menu-controlled microprocessor boiler control panel
- Siemens control panels enabling viewing and intervening the boiler data on the computer
- Natural gas option
- Boiler protection by overheating safety thermostat when the water temperature is extremely high (110 °C)
- Saving space with compact dimensions of 1045 mm x 600 mm x 598 mm (HxWxD)
- A heating circuit operating temperature range of 20°C - 90°C
- Maintenance convenience with cleaning brush
- Anti-freezing



Al-Mg-Si Cast Exchanger

## Boiler Technical Specifications



Gas Air Assembly Unit



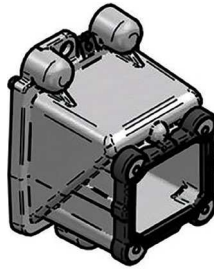
Fiber Coated Stainless Steel Burner



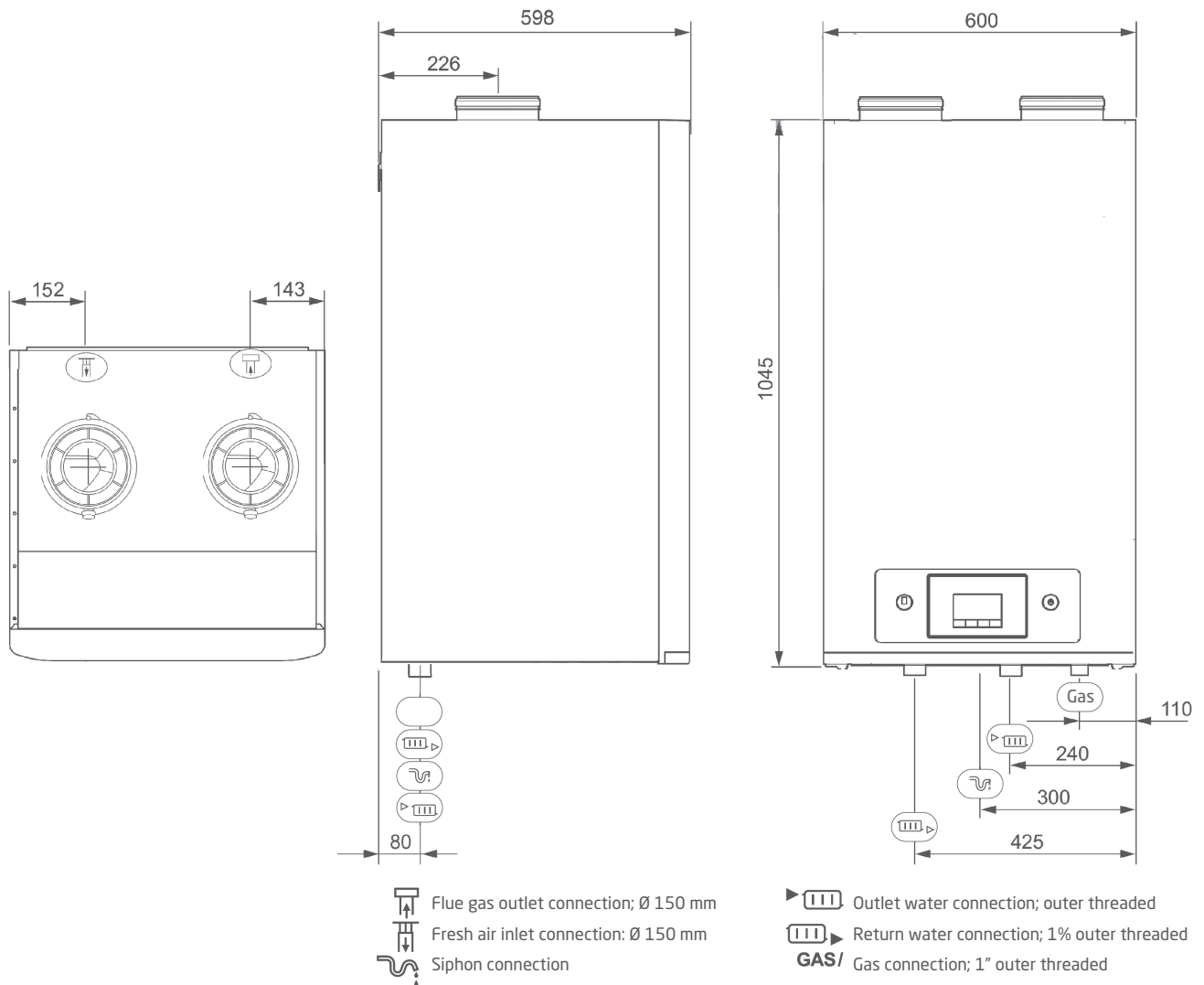
O<sub>2</sub> Inlet with Silencer

## Back Flow Valve

In Lectus Plus 160 Wall-Hung Condensing Boiler, the back flow valve is placed between the fan and heat exchanger conveyor and is cleanable.

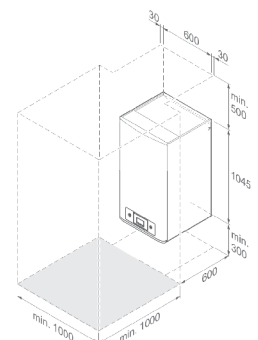


## Boiler Dimensions



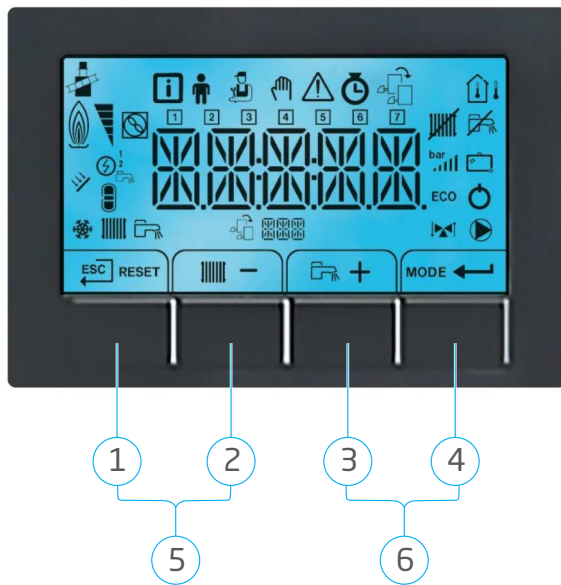
## Lectus Plus Boiler Positioning

The boiler should be installed considering the dimensions on the right. In Lectus boilers, a minimum 1100 mm distance should be left under the boiler if using Baymak hydraulic and collector set.



\* All dimensions are given in mm.

## Lectus Plus Boiler Control Panel



1. Exit; Switch to the previous menu  
**RESET** Manual restart
2. Enter the central system flow temperature setting menu  
— Decrease button; decreases the value
3. Enter the service water temperature menu  
+ Increase button; increases the value
4. **MODE** button; Central System Service Water function button  
 Enter button; Confirm the selection or value change
5. Flue sweeping buttons  
When buttons 1 and 2 are pressed simultaneously
6. Menu button  
When buttons 3 and 4 are pressed simultaneously

|  |                     |
|--|---------------------|
|  | Information         |
|  | Flue cleaning       |
|  | User                |
|  | Radiator water off  |
|  | Manual use          |
|  | Hot water use off   |
|  | Service/maintenance |

|            |                             |
|------------|-----------------------------|
| <b>ECO</b> | Economic use                |
|            | Failure information         |
|            | Boiler anti-freezing active |
|            | Clock menu                  |
|            | On/off                      |
|            | Wireless system connection  |
|            | Block key active            |

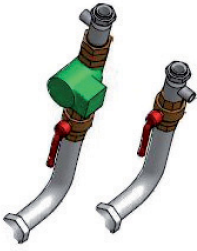
|  |                                    |
|--|------------------------------------|
|  | Open area sensor                   |
|  | Pump use                           |
|  | Boiler radiator use                |
|  | Burner level, full or partial load |
|  | Boiler hot water use               |
|  | Water filling system               |

## Technical Data Sheet

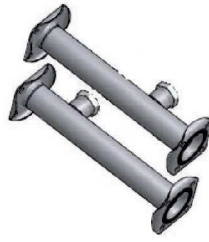
| SPECIFICATIONS                                                                              |                             | UNIT   | LECTUS 160   |
|---------------------------------------------------------------------------------------------|-----------------------------|--------|--------------|
| GENERAL INFORMATION                                                                         |                             |        |              |
| Nominal Output Power (Pn) <b>Central System (80/60°C)</b>                                   | min-max                     | kW     | 31,5 - 152,1 |
| Nominal Output Power (Pn) <b>Central System (50/30°C)</b>                                   | min-max                     | kW     | 34,7 - 161,6 |
| Nominal Inlet Load (Qn) <b>Central System (Hi)</b>                                          | min-max                     | kW     | 32 - 156     |
| Nominal Inlet Load (Qn) <b>Central System (Hi) G31 (Propane)</b>                            | min                         | kW     | 33           |
| Nominal Inlet Load (Qn) <b>Central System (Hs)</b>                                          | min-max                     | kW     | 35,6 - 173,3 |
| Central System Efficiency at Full Load <b>(Hi)(80/60°C) 92/42/EEC</b>                       | -                           | %      | 97,5         |
| Central System Efficiency at Full Load <b>(Hi)(50/30°C) (EN15502)</b>                       | -                           | %      | 103,6        |
| Central System Efficiency at Low Load <b>(Hi)(Return Water Temperature 60°C)</b>            | -                           | %      | 98,4         |
| Central System Efficiency at Partial Load <b>(92/42/EEC)(Return Water Temperature 30°C)</b> | -                           | %      | 108,5        |
| GAS AND FLUE GAS DATA                                                                       |                             |        |              |
| Gas Inlet Pressure <b>G20(Gas H)</b>                                                        | min-max                     | mbar   | 17 - 25      |
| Gas Inlet Pressure <b>G31(Propane)</b>                                                      | min-max                     | mbar   | 37 - 50      |
| Gas Consumption <b>G20(Gas H)</b>                                                           | min-max                     | m³/sa  | 3,4 - 16,5   |
| Gas Consumption <b>G31(Propane)</b>                                                         | min-max                     | m³/sa  | 1,4 - 6,3    |
| Breeam Nox                                                                                  | -                           | mg/kWh | 36           |
| Flue Gas Mass Flow Rate                                                                     | min-max                     | kg/sa  | 57 - 277     |
|                                                                                             | min-max                     | g/sn   | 16 - 77      |
| Flue Gas Temperature                                                                        | min-max                     | °C     | 32 - 66      |
| Maximum Backpressure                                                                        | -                           | Pa     | 200          |
| CENTRAL SYSTEM LINE DATA                                                                    |                             |        |              |
| Water Content                                                                               | -                           | l      | 17           |
| Water Operating Pressure                                                                    | min                         | bar    | 0,8          |
| Water Operating Pressure (PMS)                                                              | max                         | bar    | 4            |
| Water Temperature                                                                           | max                         | °C     | 110          |
| Operating Temperature                                                                       | max                         | °C     | 90           |
| ELECTRICAL DATA                                                                             |                             |        |              |
| Voltage                                                                                     | -                           | VAC    | 230          |
| Consumption - Full Load                                                                     | -                           | W      | 275          |
| Consumption - Partial Load                                                                  | -                           | W      | 47           |
| Consumption - Standby Mode                                                                  | -                           | W      | 5,3          |
| Electrical Protection Class                                                                 | -                           | IP     | IPX1B        |
| OTHER                                                                                       |                             |        |              |
| Dimensions                                                                                  | Height                      | mm     | 1045         |
|                                                                                             | Width                       | mm     | 600          |
|                                                                                             | Depth                       | mm     | 598          |
| Total Weight                                                                                | -                           | kg     | 147          |
| Sound Level                                                                                 | LWA                         | dB     | 63           |
| CERTIFICATION INFORMATION                                                                   |                             |        |              |
| CE Identification Information                                                               | PIN 0063CQ3781              |        |              |
| Nox Class                                                                                   | 5 (EN 15502-1)              |        |              |
| Flue Types                                                                                  | B23P, B33                   |        |              |
|                                                                                             | C13,C33,C43,C53,C63,C83,C93 |        |              |



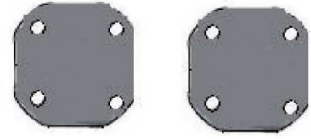
## Hydraulic Assembly Connection Set



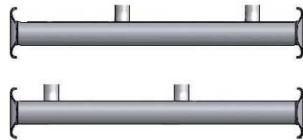
Hydraulic Connection Set  
(16900228)



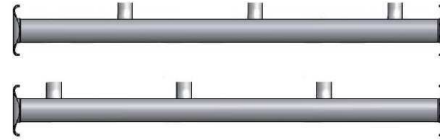
## Single Boiler Collector Assembly (16900229)



## Blind Plug Assembly (16900223)



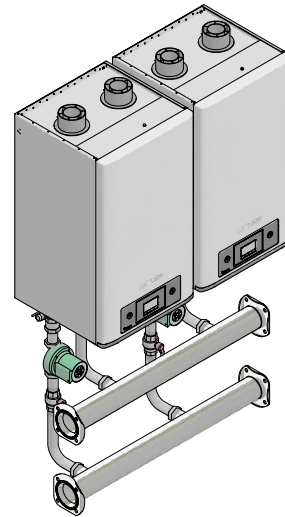
### Double Boiler Collector Assembly (16900230)



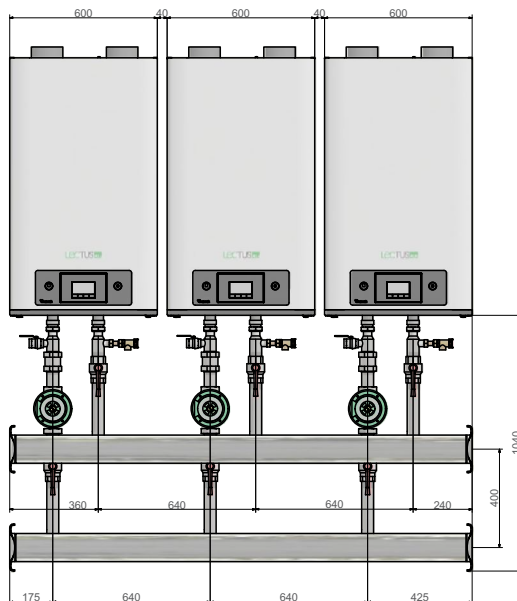
## Triple Boiler Collector Assembly (16900231)



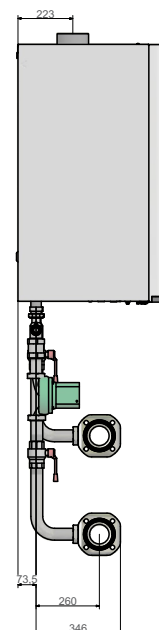
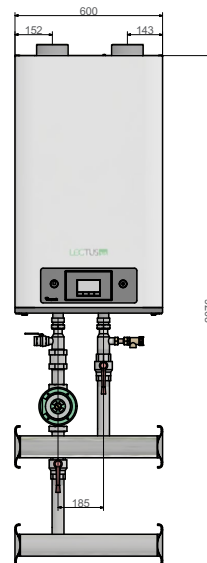
## Single Assembly Connection Set



### Double Assembly Connection Set

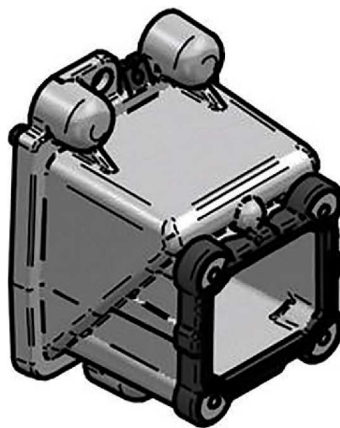


### Triple Assembly Connection Set



## Back Flow Valve

In Lectus Plus 160 Wall-Hung Condensing Boiler, the back flow valve is placed between the fan and heat exchanger conveyor and is cleanable.



## Single Boiler Control Accessories



### Baymak Programmable Wired Room Thermostat (16900402)

Baymak room thermostat is an OpenTherm timer thermostat with various advanced functions.

- Simple and precise control
- Illuminated light blue LCD display
- Multi-functional help menu
- Immediate intervention possibility
- Customizable display



### SCB-02 Boiler Control Card (16911005)

- Two mixing valve control



### Baymak Outdoor Air Sensor (16900224)

- Protection against external conditions by protective cover
- Operating at a temperature range of -60°C and 62°C



### Baymak Boiler Sensor (16910078)

- Submersible temperature sensor
- NTC 12 K Ohm
- Operating at a temperature range of 10°C and 90°C

## Cascade System



A cascade system is a system that consists of two or more pieces of equipment connected to an installation to achieve higher thermal powers. In Lectus Cascade systems, the RVS cascade control panel enables modulated boiler operation to provide thermal power to the system as needed. Cascade systems save fuel in power consumption and enable simultaneous boiler aging. Thus, boiler service and maintenance convenience is ensured. Baymak Lectus boilers can be controlled by connecting maximum 15 boilers in a cascade configuration.



## Cascade Control Accessories

Lectus boilers are operated from RVS 283 control panel. The following sensors control the operation of the cascade system.



### RVS 283 Cascade Control Panel (09120032)

- Boiler control panel, cascade operation with up to 15 pieces of equipment
- Heat generation and distribution control, timing
- Energy-saving
- Easy and quick use with the user interface supporting Turkish characters
- Simultaneous control of the boiler, zone with 2 mixing valves, and direct circuit
- Solar collector control
- Auxiliary relay and sensor outlets
- Possibility to connect to and control the equipment on the computer via the OCI 700 tool
- Possibility to connect additional module, possibility to add equipment for the mixing valve zone



### RVS 21 Mod BUS Cascade Control Panel (100020681)

- Compatibility with OCI350.01/101 Interface module and Mod BUS connections,
- Accessing to operation, status, and failure information via sensors
- Ease of use, legible large LCD display
- Easy access to the menus, control panel with Turkish menu
- Capable of controlling a cascade consisting of a maximum of 15 pieces of equipment
- Flue cleaning function, protection against Legionella bacteria
- Possibility of manual equipment control
- Anti-freezing function
- Easy view of the system information via the info button
- Possibility of individual programming for each heating circuit



### QAC 34 Outdoor Air Sensor (16900066)

- Outdoor air sensors
- NTC 1 K Ohm
- Protection against external conditions by protective cover
- Operating at a temperature range of -50°C and 70°C



### QAD 36 Flow-Return Temperature Sensor (16900077)

- Clamp type temperature sensor
- NTC 10 K Ohm
- Operating at a temperature range of -30°C and 125°C



### OCI 365 Interface (16910171)

- Boiler intercommunication via Opentherm communication
- Failure display on home screen
- Possibility of checking whether the communication has been established or not via the LED light (Continuous flashing light indicates that the connection has been established.)



### QAZ 36 Boiler Hot Water Sensor (16910072)

- Submersible temperature sensor
- NTC 10 K Ohm
- Operating at a temperature range of 0°C and 95°C



### OCI 670/109 Web Server (100022179)

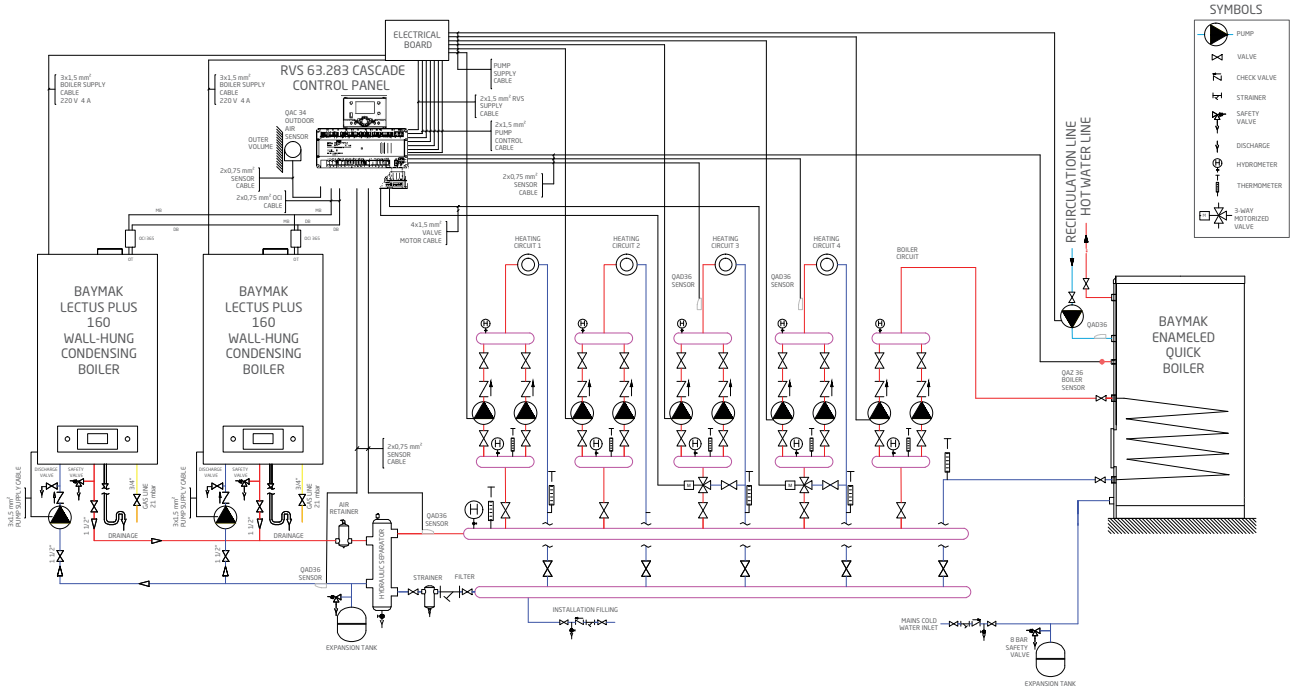
- Possibility of controlling and monitoring the facility on the web
- Possibility of operating via a smart phone or computer
- Possibility of controlling parameters via remote access
- Monitoring the boiler operating status



### QAA 55 Room Thermostat (16910074)

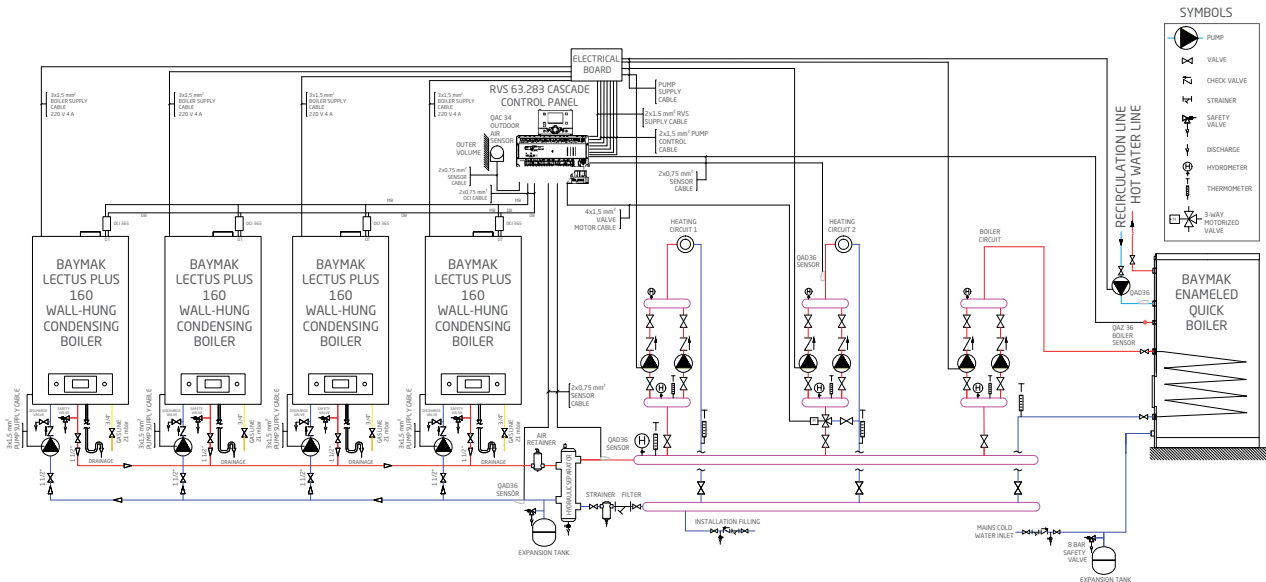
- Possibility of changing the room comfort set value
- Operating mode selection option (automatic operation, continuous operation, etc.)

## Double Cascade Floor Heating Boiler Pool Heating Circuit



- THE AIR SEPARATOR, STRAINER, HYDRAULIC SEPARATOR SHOULD BE MOUNTED AS SHOWN IN THE SYSTEM DIAGRAM ABOVE, OR TRIPLE PRODUCT SETS SHOULD BE USED.
- THE PIPE DIAMETERS ARE FOR STEEL PIPE. A PLASTIC PIPE SHOULD NOT BE USED BEFORE THE HYDRAULIC SEPARATOR.
- THE SAFETY VALVE DISCHARGES, CONDENSATE DRAINS, AND DISCHARGE VALVES SHOULD BE EXTENDED TO THE WATER COLLECTION CHANNEL VIA A DRAINAGE LINE.
- THE INSTALLATIONS AT THE BOTTOM OF THE BOILER SHOULD BE CONNECTED USING UNION FITTINGS.
- THE SYSTEM DIAGRAM DOES NOT CONTAIN DIMENSIONS. PLEASE REFER TO THE BOILER TECHNICAL DOCUMENTATION FOR BOILER DIMENSIONS AND ALL OTHER DETAILS.
- THE CONTROL PANEL OUTPUT IS 230 V. A CONTACTOR SHOULD BE USED TO CONTROL THE PUMP CIRCUITS.
- THE 3-WAY VALVE MOTORS ARE DIRECTLY FED WITH 230 V FROM THE CASCADE CONTROL PANEL.

## Quadruple Cascade Radiator Boiler Circuit



- THE AIR SEPARATOR, STRAINER, HYDRAULIC SEPARATOR SHOULD BE MOUNTED AS SHOWN IN THE SYSTEM DIAGRAM ABOVE, OR TRIPLE PRODUCT SETS SHOULD BE USED.
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