

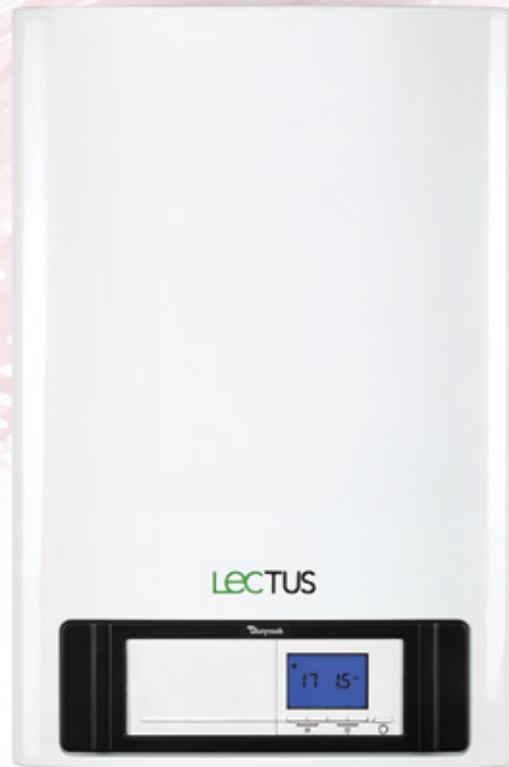
CENTRAL
HEATING
SYSTEMS

LECTUS / 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_x 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

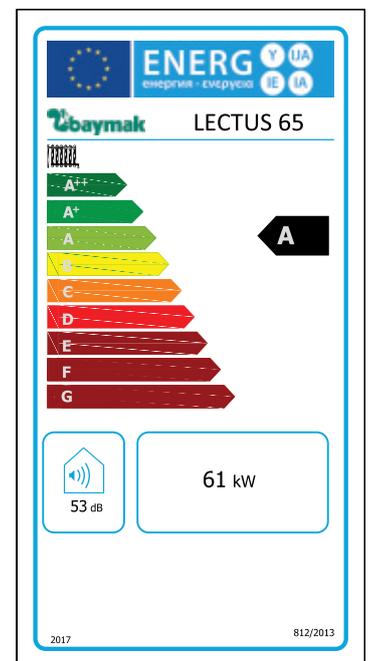
Why Choose Condensing Boiler?

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_x. Thus, it saves natural energy sources and protects the environment. The annual CO₂ emission of high-efficiency condensing boilers is 20% greater than the standard-efficiency boilers.



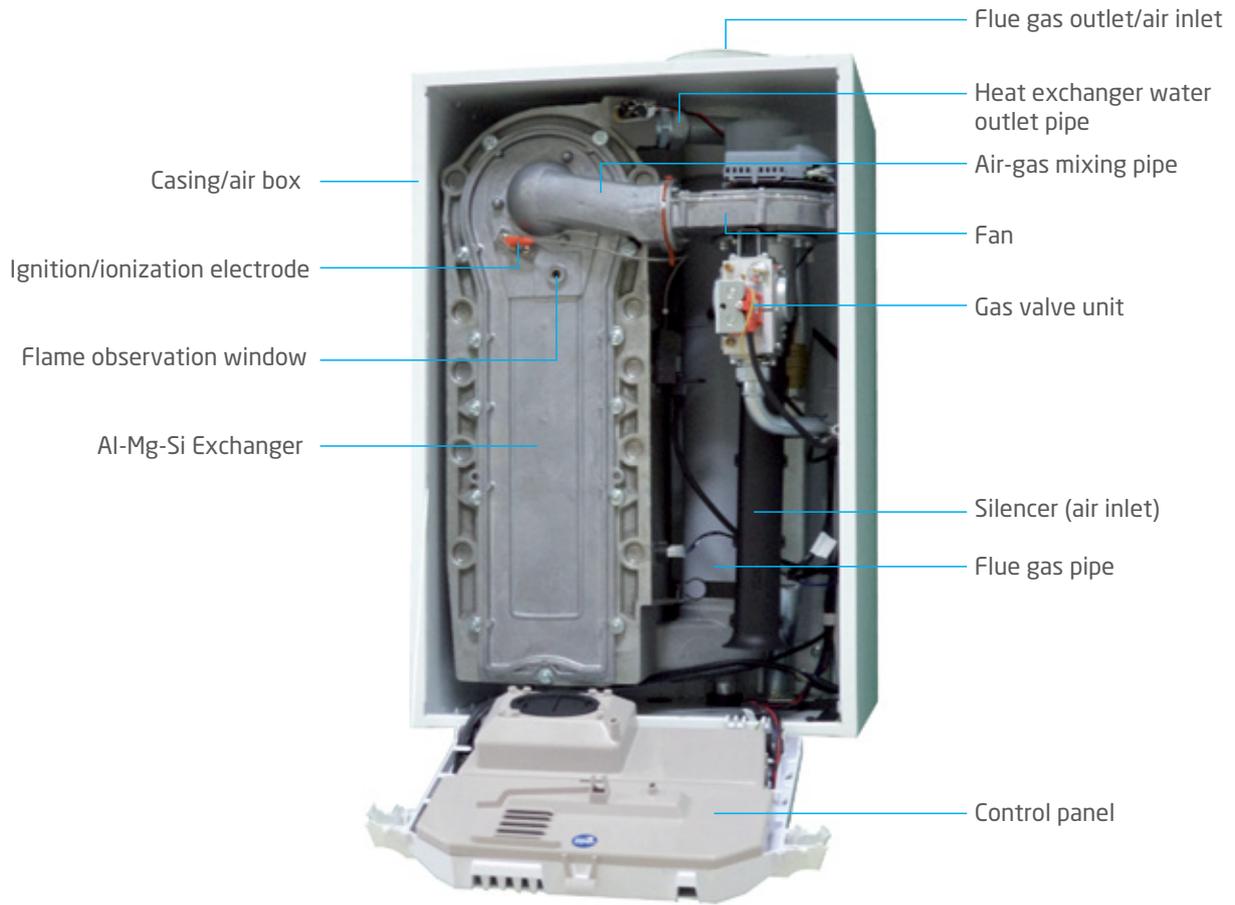
Lectus Boiler Specifications

- 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 (NO_x < 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

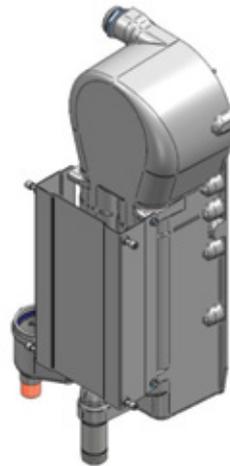
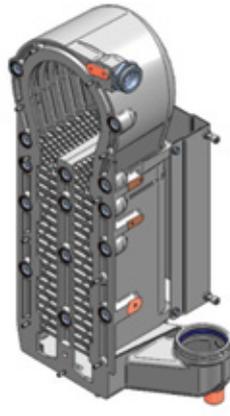
Boiler Technical Specifications



Modulating Fan,
Gas Valve Assembly



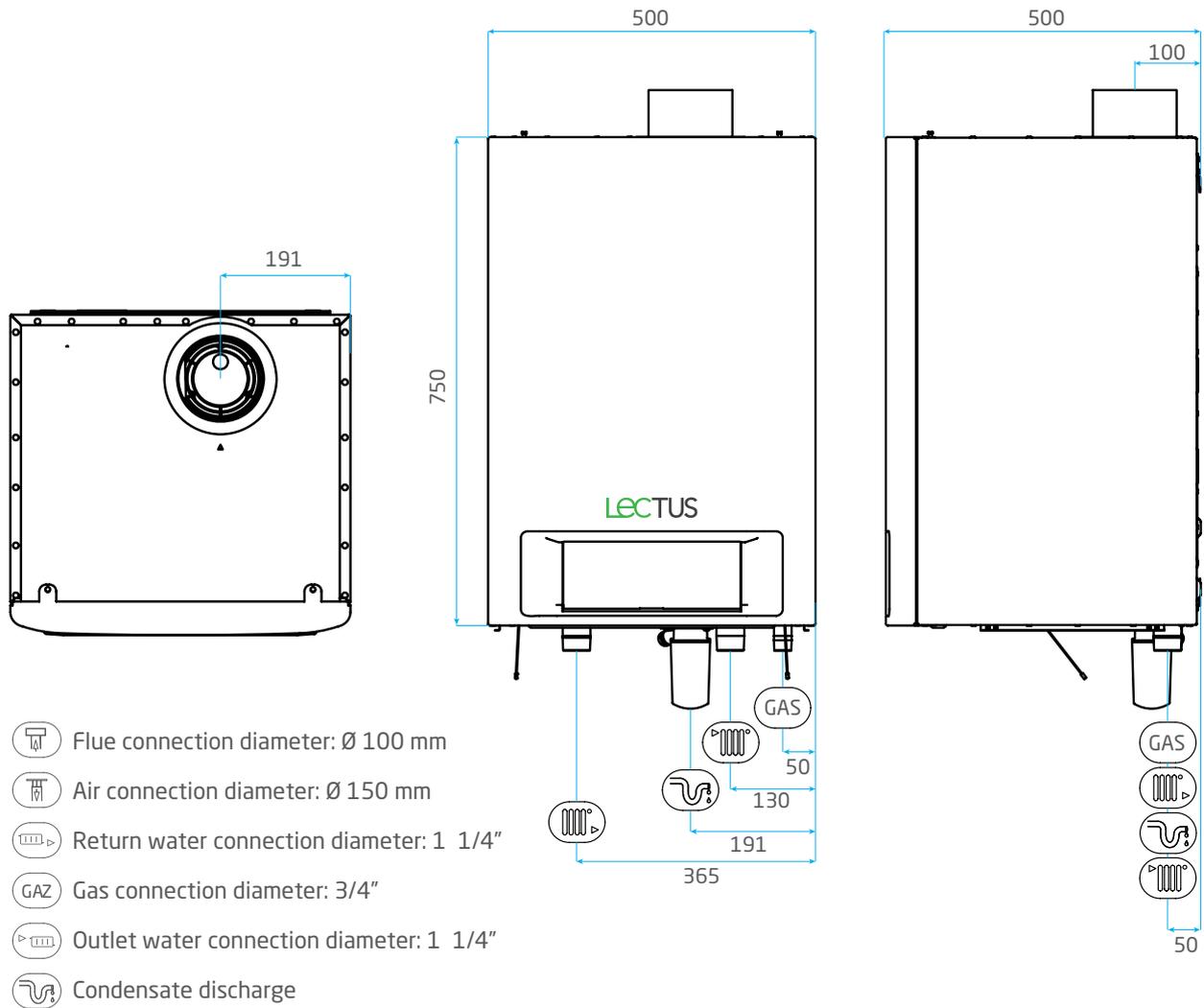
Fiber Coated
Stainless Steel Burner



AI-Mg-Si Cast Exchanger Casing

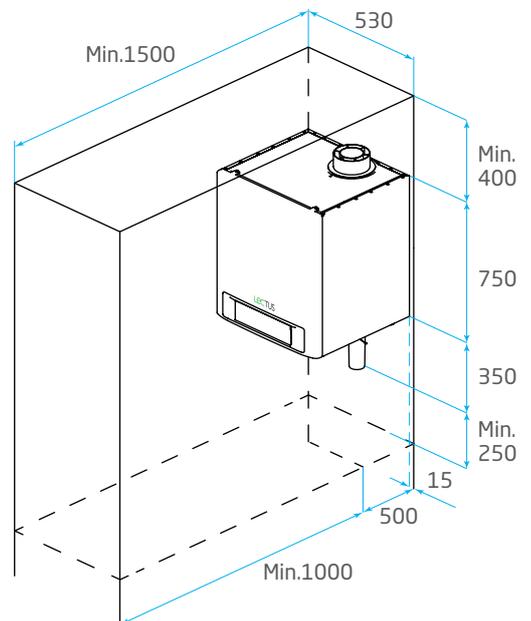


Boiler Dimensions



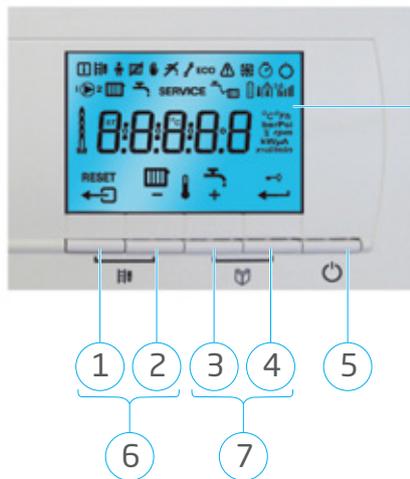
Lectus Boiler Positioning

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

ECO	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

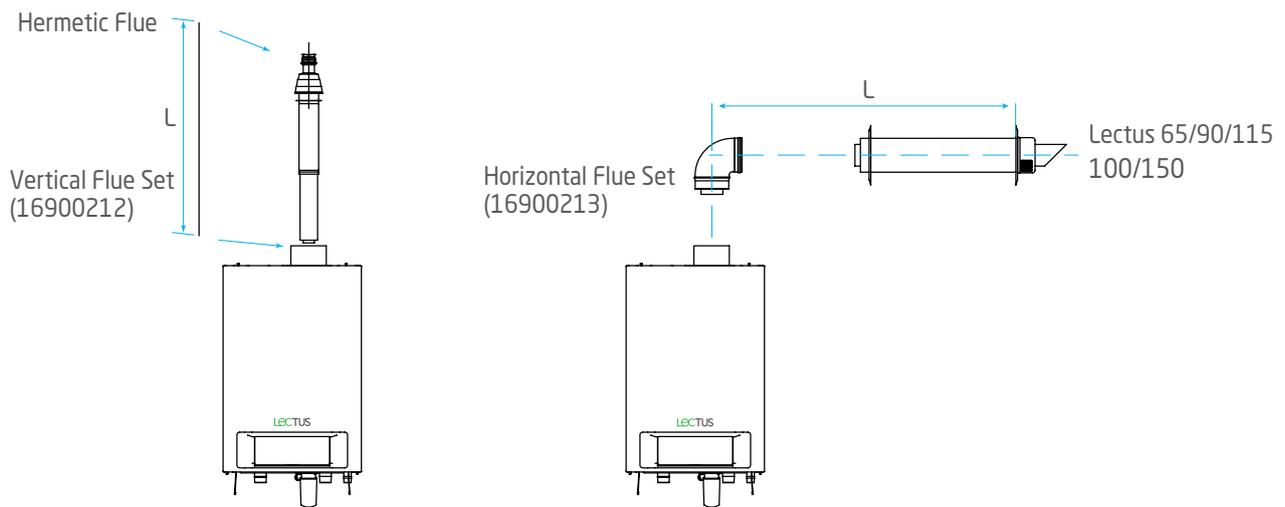
Technical Data Sheet

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 (η_s)	%	94	-	-
Useful efficiency at nominal heat output and high temperature (η_4)	%	89,4	88,2	87,5
Useful efficiency at 30% nominal heat output and low temperature (η_1)	%	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 (P _{sb})	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
CO ₂ content	%	9,0	9,0	9,0
NO _x emission (EN483)	mg/kWh	<32	<39	<39
Gas consumption (Natural gas) Minimum-Maximum	m ³ /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 ($\Delta T = 20K$)	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

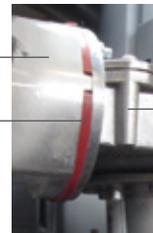
Elbow Type	Lost Length L (meter)
45° Elbow	1
90° Elbow	2

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.

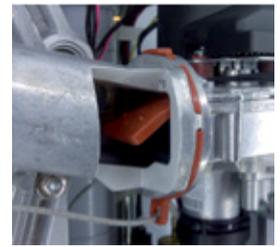


Heat Exchanger conveyor



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;

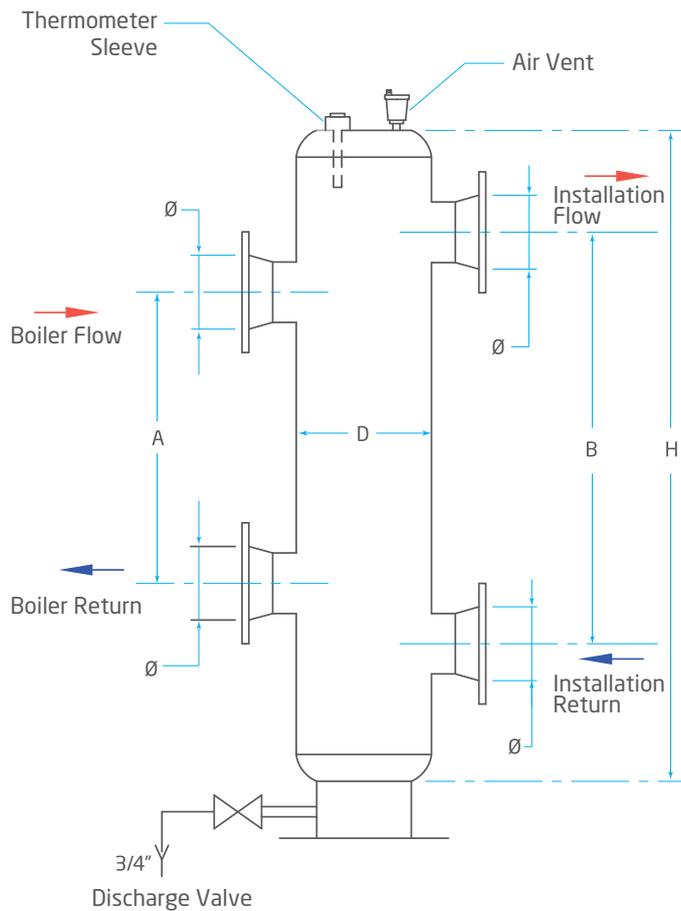
- Condensation of nearly 7.5-liter water per one hour operation of Lectus 65
- Condensation of nearly 10-liter water per one hour operation of Lectus 90
- Condensation of nearly 12.5-liter water per one hour operation of Lectus 115

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



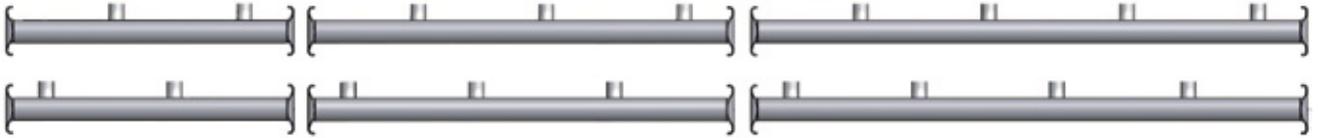
Hydraulic Connection Set
(16900227)



Single Boiler Collector Assembly
(16900208)



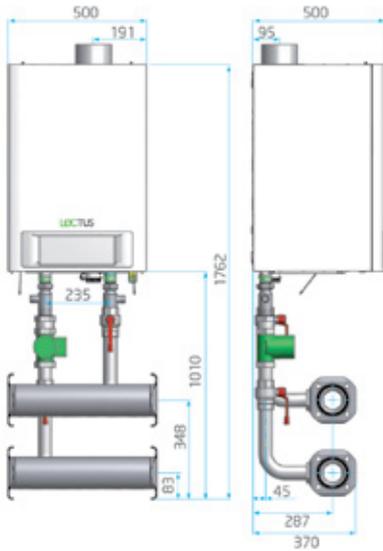
Blind Plug Assembly
(16900223)



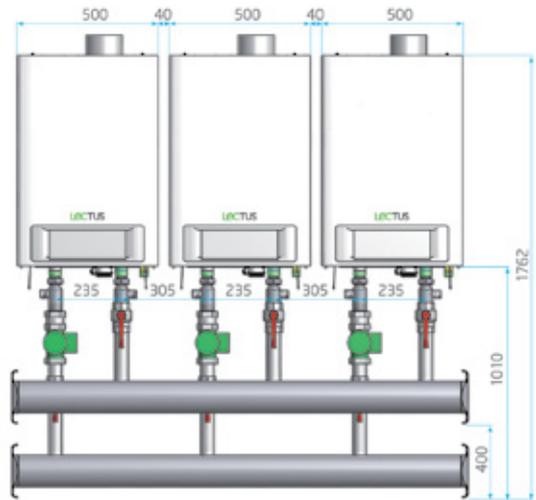
Double Boiler Collector
Assembly
(16900209)

Triple Boiler Collector
Assembly
(16900221)

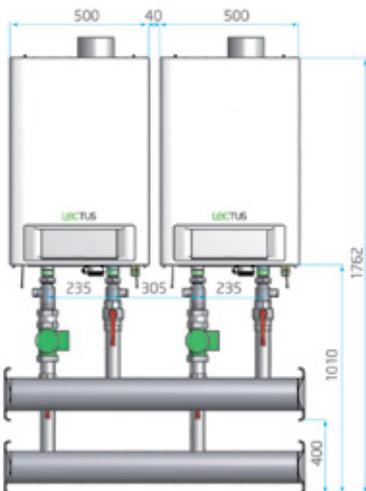
Quadruple Boiler Collector
Assembly
(16900222)



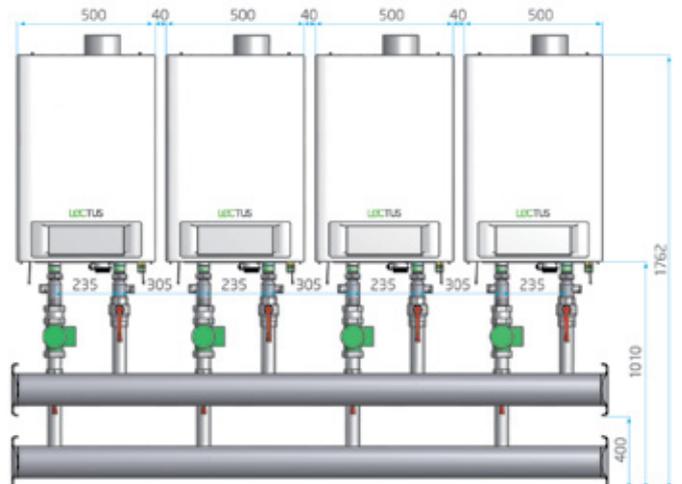
Single Assembly Connection Set



Triple Assembly Connection Set



Double Assembly Connection Set



Dörtlü Grup Bağlantı Seti



Baymak Programmable Wired Room Thermostat (16900402)

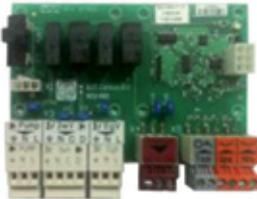
Baymak room thermostat is an OpenTherm timer thermostat with various advanced functions.

- 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)

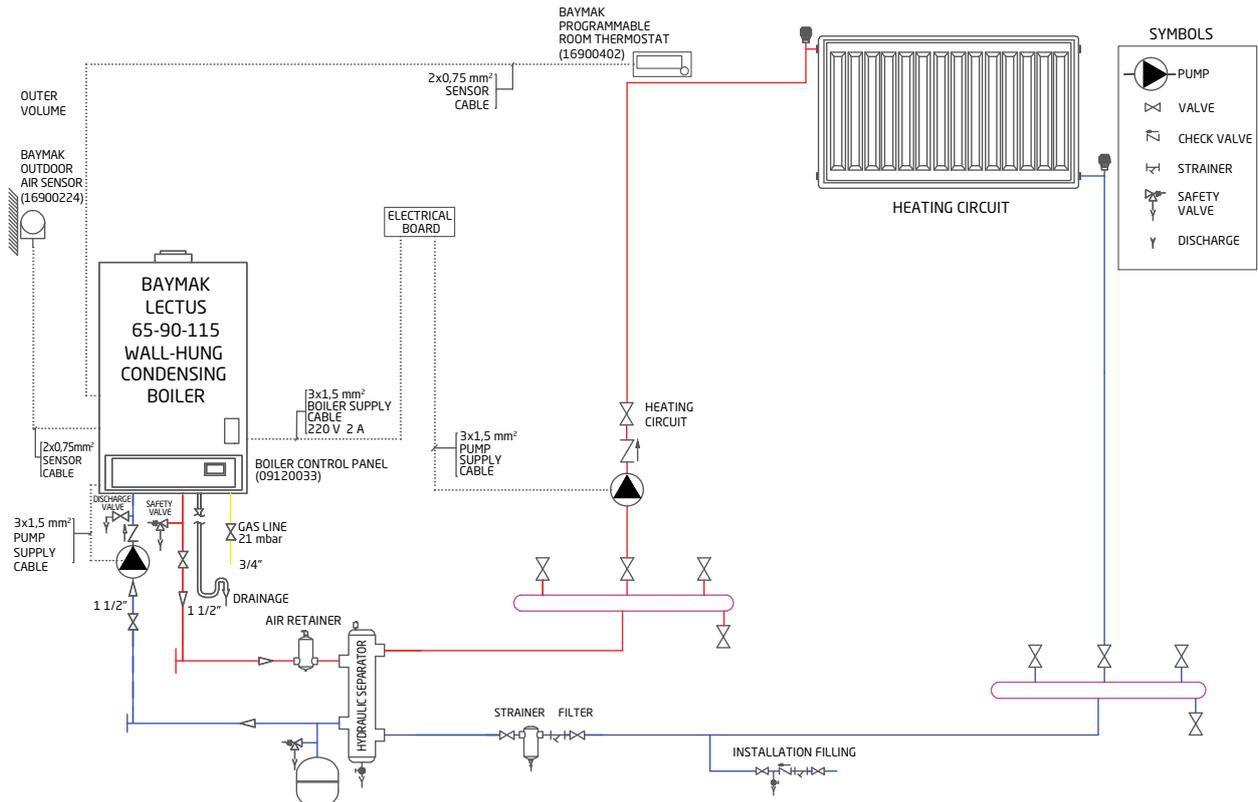
- Protection against external conditions by protective cover
- Operating at a temperature range of -60°C and 62°C



Baymak Boiler Sensor (16910078)

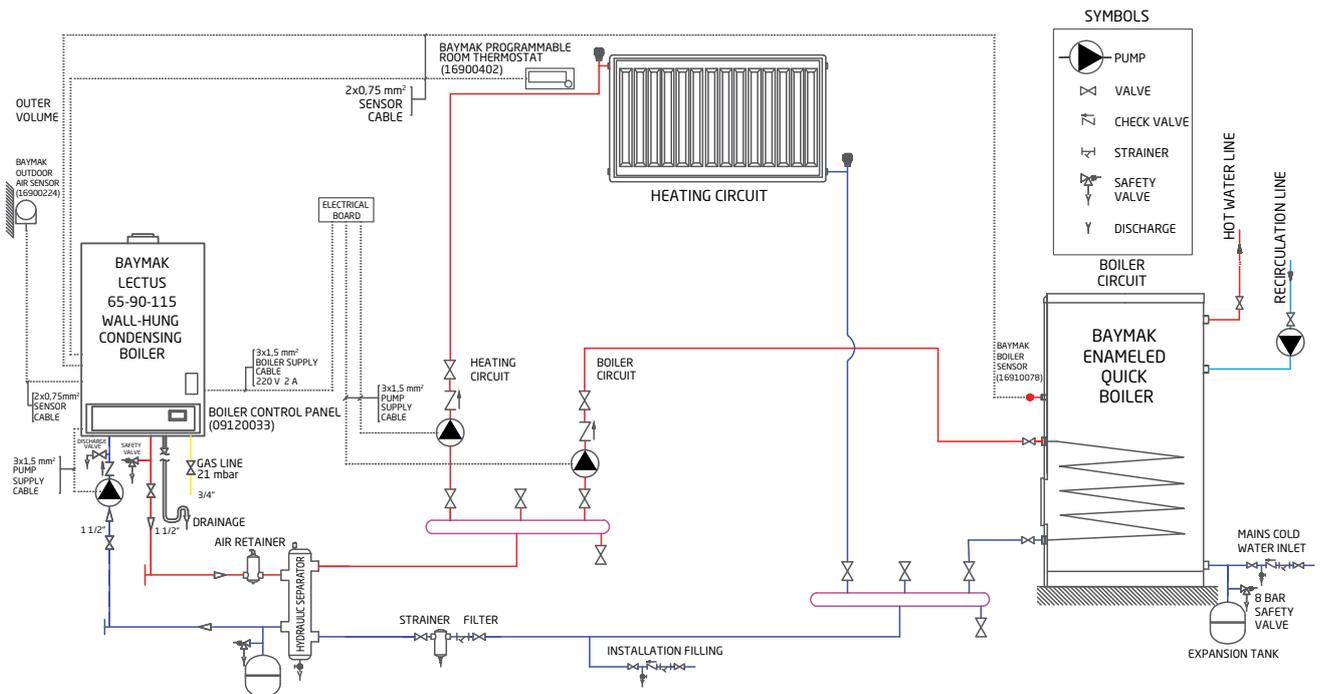
- Submersible temperature sensor
- NTC12K0hm
- Operating at a temperature range of 10°C and 90°C

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 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)

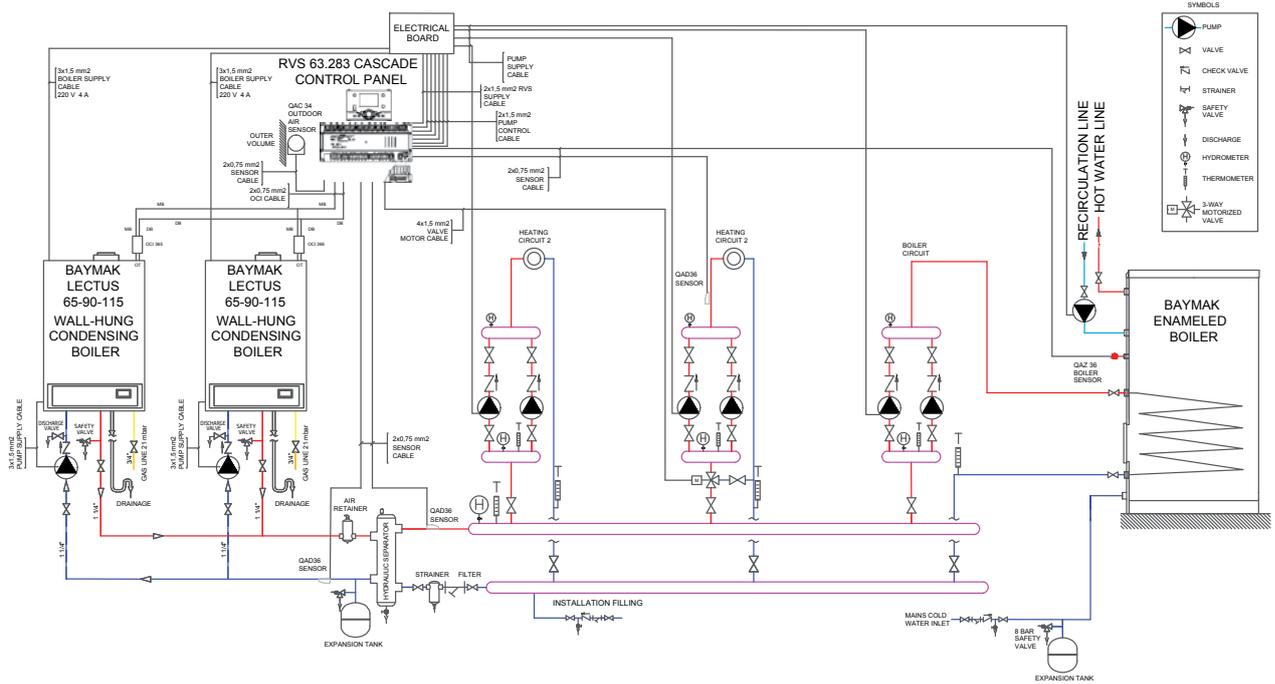
- Possibility of controlling and monitoring the facility on the web
- Possibility of operating via a smart phone or computer
- Possibility of controlling parameters via remote access
- Monitoring the boiler operating status



QAA 55 Room Thermostat (16910074)

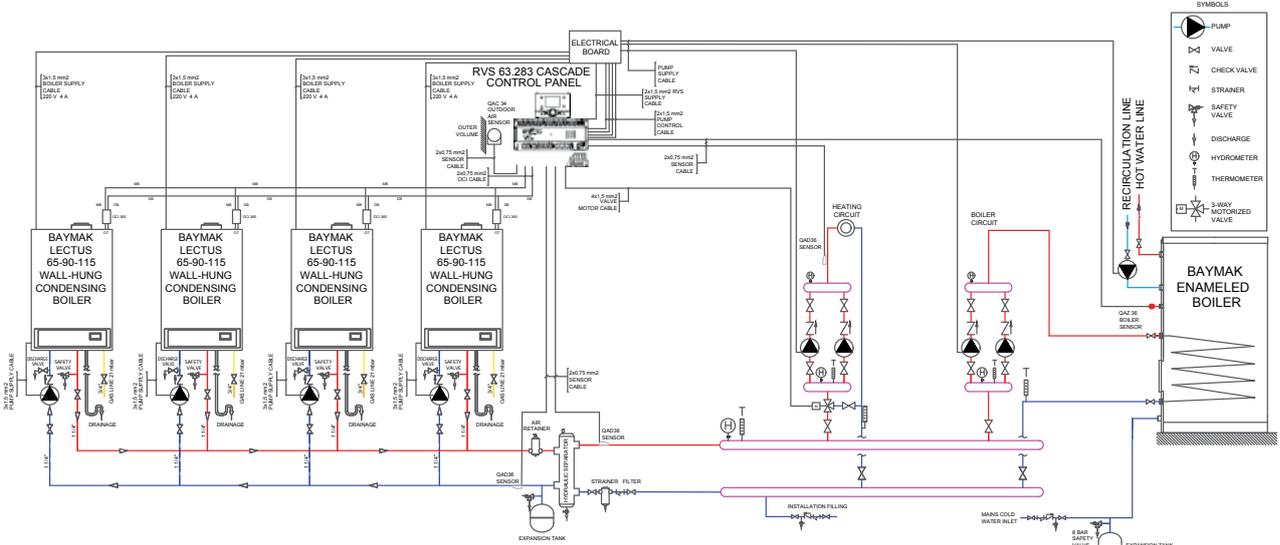
- Possibility of changing the room comfort set value
- Operating mode selection option (automatic operation, continuous operation, etc.)

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.



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