








# ATMOS

## Lignite gasification boilers








## C15S

Lignite gasification boiler.

-  **Rated power 16 kW**
-  **Boiler efficiency 90,4 %**
-  **Emission class nr. 5 (Ecodesign)**
-  **Fuel shaft volume 45 l**
-  **Log length 250 mm**






## C18S

Lignite gasification boiler.

-  **Rated power 20 kW**
-  **Boiler efficiency 88,9 %**
-  **Emission class nr. 5 (Ecodesign)**
-  **Fuel shaft volume 60 l**
-  **Log length 330 mm**






## C25ST

Lignite gasification boiler.

-  **Rated power 25 kW**
-  **Boiler efficiency 88,9 %**
-  **Emission class nr. 5 (Ecodesign)**
-  **Fuel shaft volume 90 l**
-  **Log length 330 mm**






## C32ST

Lignite gasification boiler.

-  **Rated power 32 kW**
-  **Boiler efficiency 88,6 %**
-  **Emission class nr. 5 (Ecodesign)**
-  **Fuel shaft volume 110 l**
-  **Log length 430 mm**






## C40S

Lignite gasification boiler.

-  **Rated power 40 kW**
-  **Boiler efficiency 85,4 %**
-  **Emission class nr. 4 (Ecodesign)**
-  **Fuel shaft volume 135 l**
-  **Log length 530 mm**

## C50S

Lignite gasification boiler.

-  **Rated power 48 kW**
-  **Boiler efficiency 90 %**
-  **Emission class nr. 5 (Ecodesign)**
-  **Fuel shaft volume 135 l**
-  **Log length 530 mm**

## Lignite gasification boilers

They are designed for burning brown coal and wood as a substitute fuel (ignition), on the principle of generator gasification using an exhaust fan, which sucks the flue gases from the boiler.

The boiler body is made as a weldment from high-quality steel sheets with a thickness of 3 to 6 mm. It consists of two chambers placed one above the other, the upper one serves as a fuel tank, the lower one as a combustion chamber and an ashtray. Between them is a new, patented rotating grate, which allows perfect gasification of fuel and easy ash removal. In the rear part of the boiler body there is a vertical flue gas duct, equipped with a ignition valve in the upper part. The upper part of the flue is equipped with an exhaust neck for connection to the chimney.

## Advantages of ATMOS coal gasification boilers

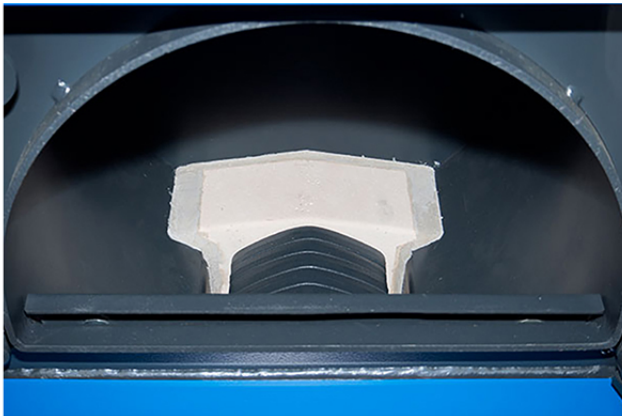
- Possibility to burn quality brown coal and wood as a substitute fuel
- Large fuel tank – long burning time – up to 12 hours, depending on boiler type
- High efficiency 85,4 to 90,4 % depending on the type – primary and secondary air is preheated to a high temperature
- Ceramic combustion chamber
- More environmentally friendly combustion – boiler according to EN 303-5:2012 class 4 and 5, EKODESIGN 2015/1189
- Exhaust fan – dust-free ash removal, smokeless boiler room
- Cooling loop against overheating – without the risk of damaging the boiler
- Automatic shutdown of the boiler after the fuel burns out – flue gas thermostat
- Convenient ash removal – large space for ash (wood burning – collect 1x/week, – for coal 1x/day)
- Easy to clean – (C25ST, C32ST, C50S – boilers with tube heat exchanger)
- Small size and low weight
- Possibility of choosing a door R / L (right/left) for selected types
- Possibility of connection without accumulation tank
  - High Quality

## Installation

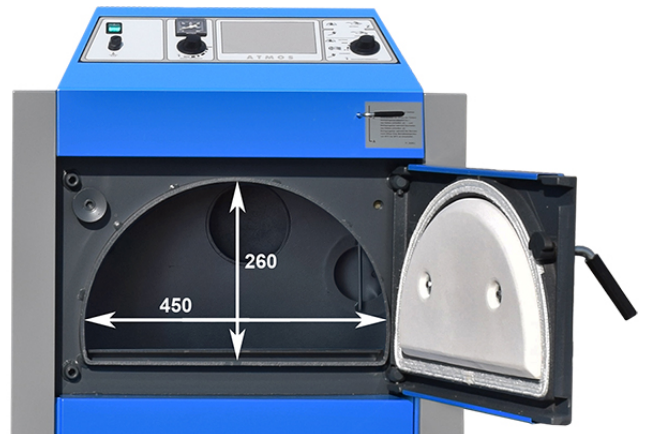
ATMOS wood gasification boilers must be connected with LADDOMAT 22 or a thermoregulation valve (three-way valve controlled by an actuator in case of using electronic control ATMOS ACD 03) to achieve a minimum return water temperature to the boiler of 65 °C. We keep the outlet temperature of the boiler in the range of 80 – 90 °C and set the temperature of the water to the radiators or floor heating on the mixing three-way valve as needed (e.g. 30 – 80 °C).

All boilers are supplied in a basic design with a cooling loop against overheating. We recommend installing a boiler with accumulation tanks, which will reduce fuel consumption and increase heating comfort.





View of top feeding chamber



Dimension of Application chamber



View of bottom feeding chamber



Lower combustion chamber with flame



Exhaust fan and flue gas neck



Boiler upper cleaning lid





## Boilers regulation

Electromechanical regulation – boiler performance is regulated by an air regulating valve controlled by a draft regulator, FR 124 type, which automatically opens or closes the air valve according to the set water outlet temperature (80 – 90 °C). In addition to performance regulation, the draft regulator helps protect the boiler against overheating. Its advantage is a quick ignition and firing up to the required output when the air valve is fully open. The boilers are equipped with a control thermostat on the instrument panel, which controls the exhaust fan according to the set water outlet temperature (80 – 85 °C) and a flue gas thermostat, which is used to shut down the boiler and turn off the exhaust fan after the fuel has burned out. In the case of connecting a boiler with accumulation tanks, the flue gas thermostat also controls the operation of the pump in the boiler circuit. The temperature on the control thermostat should be 5°C lower than on the FR 124 draft regulator.

In addition, the boilers are equipped with a flue gas thermostat, which is used to turn off the exhaust fan after the fuel has burned out. The boilers operate at a reduced output of up to 70 % of the rated output even without a fan.



Regulating air flap



Draught regulator FR 124



Boiler control panel with standard regulation

### Panel composition:

Main off switch, safety thermostat, thermometer, regulator thermostat and combustion thermostat

Electromechanical control is the optimal solution for controlling the operation of the boiler (fan) in a simple way.

The design of the panel with standard regulation is the basic design for all manufactured boilers.

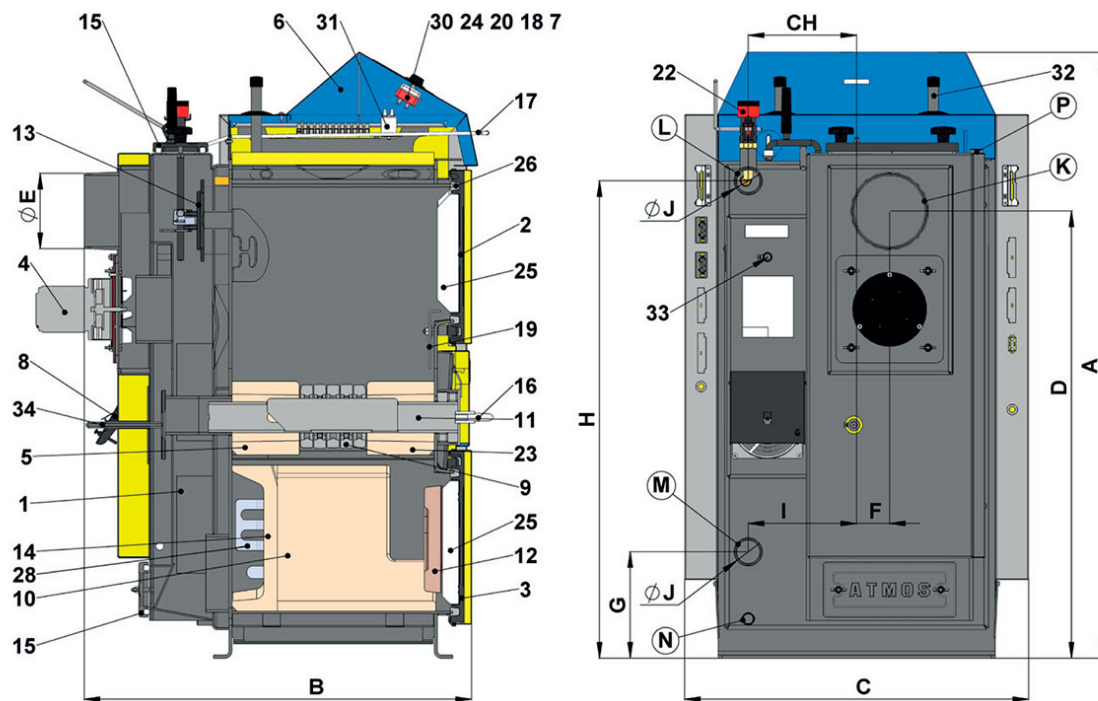
## Equithermal regulation ACD 03

Each boiler can be equipped with a modern touch electronic control ATMOS ACD 03 for controlling the entire heating system depending on the outdoor temperature, room temperature and time. This regulation is able to control the boiler itself with a fan with many other functions.

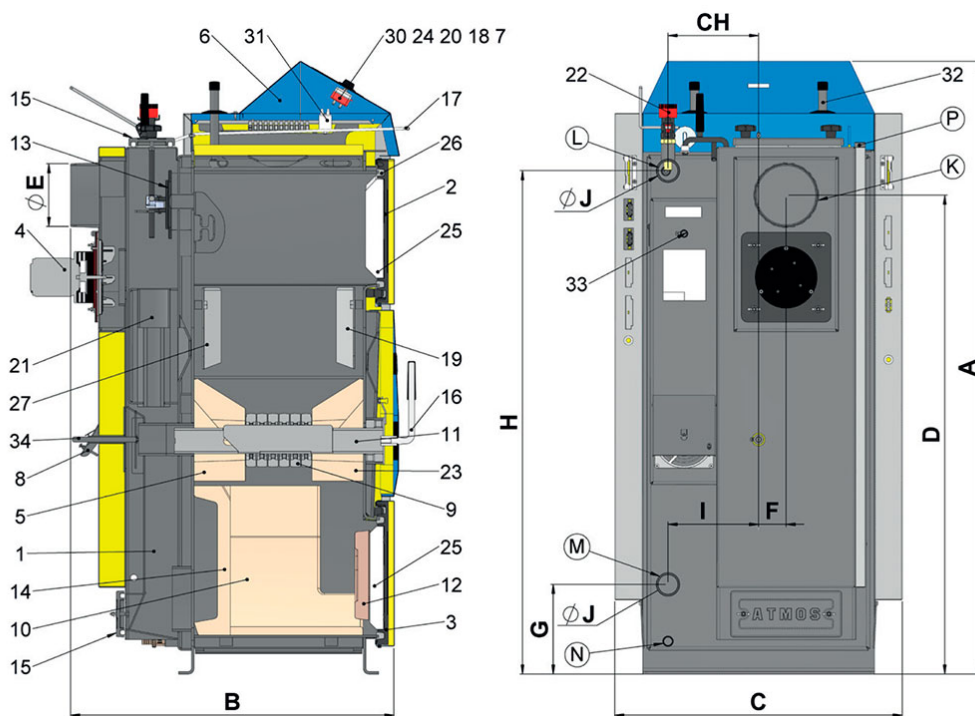


Boiler control panel with equithermal regulation ATMOS ACD 03

## Technical information



CxxS



CxxST

Description of the boiler drawing		
1. Boiler body	21. Tube heat exchanger – tube sheet (C25ST, C32ST, C50S)	
2. Filling door – upper	22. Draught regulator – HONEYWELL FR124	
3. Ashtray door – lower	23. Heat-resistant fitting – front cube	
4. Exhaust fan (S)	24. Fan control (boiler) thermostat	
5. Heat-resistant fitting – rear cube	25. Door panel – Sibrall	
6. Control panel	26. Door seal – cord 18 x 18	
7. Safety thermostat	27. Combustion area screen – rear	
8. Control flap	28. Waste gas brake – along spherical space (C50S)	
9. Grate (segment)	30. Waste gas thermostat	
10. Heat-resistant fitting – spherical space	31. Capacitor for exhaust fan – 1µF	
11. Grate pipe	32. Cooling loop protecting against overheating	
12. Heat-resistant fitting – half-moon	33. Primary air regulation	
13. Firing up valve	34. Secondary air regulation	
14. Heat-resistant fitting – rear part of spherical space		
15. Cleaning lid		
16. Grate lever	K – the flue-gas duct neck	
17. The rod for firing up flap	L – the boiler water outlet	
18. Thermometer	M – the boiler water inlet	
19. Frame shield	N – filling valve pipe sleeve	
20. Switch with an indicator light	P – sleeve for a sensor of the valve which regulates the cooling loop	

Boiler dimensions (mm)								
	C15S	C18S	C20S	C25ST	C30S	C32ST	C40S	C50S
A	1185	1185	1435	1435	1435	1435	1435	1435
B	658	758	758	758	858	858	958	1117
C	595	675*	675*	675*	675*	675*	675*	675*
D	874	874	1121	1121	1121	1121	1121	1115
E	150/152	150/152	150/152	150/152	150/152	150/152	150/152	150/152
F	65	65	65	65	65	65	65	78
G	210	210	210	210	210	210	210	210
H	933	933	1177	1177	1177	1177	1177	1177
CH	212	212	212	212	212	212	212	212
I	212	212	212	212	212	212	212	212
J	6/4"	6/4"	6/4"	6/4"	6/4"	6/4"	2"	2"

\* the width of the boiler after removing the side hoods is 555 mm



Specifications		Boiler type							
		C15S	C18S	C20S	C25ST	C30S	C32ST	C40S	C50S
Boiler heat output	kW	16	20	25	25	32	32	40	48
Boiler thermal input	kW	17,7	22,5	29,6	28,1	37,6	36,1	46,8	53
Heating surface	m²	1,6	1,8	2,1	2,6	2,6	3,1	3,2	3,5
Fuel shaft volume	dm³ (l)	45	60	90	90	110	110	135	135
Feeding hole dimensions	mm	450 x 260	450 x 260	450 x 260	450 x 260	450 x 260	450 x 260	450 x 260	450 x 260
Prescribed chimney draft	Pa/mbar	16/0,16	20/0,20	23/0,23	23/0,23	25/0,25	25/0,25	28/0,28	28/0,28
Max. working overpressure of water	kPa/bar	250/2,5	250/2,5	250/2,5	250/2,5	250/2,5	250/2,5	250/2,5	250/2,5
Boiler weight	kg	273	295	351	379	395	415	434	492
Gas-outlet pipe diameter	mm	150/152	150/152	150/152	150/152	150/152	150/152	150/152	150/152
Ingress protection	IP	20	20	20	20	20	20	20	20
Electrical power input (auxiliary)	W	50	50	50	50	50	50	50	50
Electrical input in standby mode	W	0	0	0	0	0	0	0	0
Ignition mode		manual							
Efficiency over the entire performance range	%	90,4	88,9	84,5	88,9	85	88,6	85,4	90,5
Boiler class		5	5	4	5	4	5	4	5
Boiler category		1							
Operating mode		non-condensing							
Energy efficiency class		B	C	C	C	C	C	C	B
Waste gas temperature at nominal output	°C	141,2	169,3	219	164	210	180,5	222	172,5
Waste gas combustion products flow weight at nominal output	kg/s	0,010	0,012	0,015	0,016	0,018	0,018	0,022	0,025
Specified fuel (preffered)		Brown coal ORECH 1 with a calorific value of 17 – 20 MJ/kg <sup>-1</sup>							
Spare fuel (firing up)		Dry wood with a calorific value of 15 – 17 MJ/kg <sup>-1</sup> , water content 12 – 20 %, diameter 80 – 120 mm							
Prescribed wood length	mm	250	330	330	330	430	430	530	530
Combustion time at nominal output for coal	Hours	4	4	4	4	5	5	5	4
Combustion time at nominal output for wood	Hours	2	2	2	2	3	3	3	2
The volume of water in the boiler	l	37	45	64	68	70	74	77	95
Boiler hydraulic loss	mbar	0,17	0,18	0,20	0,20	0,22	0,22	0,22	0,22
Connecting voltage	V/Hz	230/50							