ATMOS

DC18SP

Combined boiler for wood and pellets.

- **Rated power 20 kW**
- **Boiler efficiency 90,1 - 92,5 %**
- **Emission class nr. 5 (Ecodesign)**
- **Log length 330 mm**

DC25SP

Combined boiler for wood and pellets.

- **Rated power 27 kW**
- **Boiler efficiency 89,9 - 91,2 %**
- **Emission class nr. 5 (Ecodesign)**
- **Log length 530 mm**

DC32SP

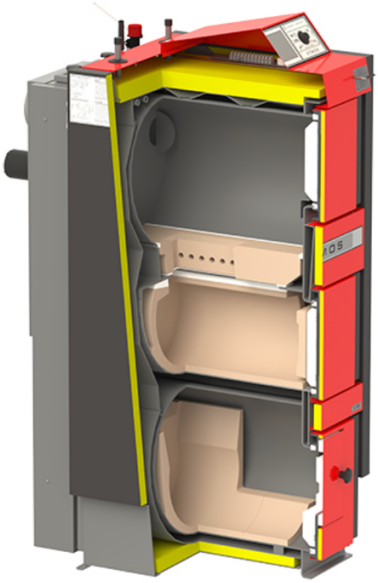
Combined boiler for wood and pellets.

- **Rated power 35 kW**
- **Boiler efficiency 89,9 - 91,2 %**
- **Emission class nr. 5 (Ecodesign)**
- **Log length 530 mm**

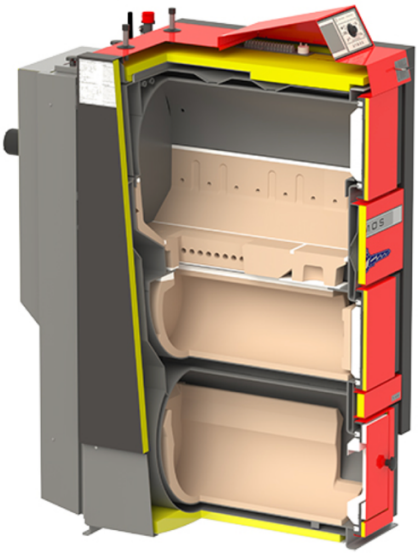
DCxxSP(X)(T) boilers meets 5th emission class (Energy efficiency class A+), Ekodesign.

Advantages of ATMOS boilers

- possible combination of individual types of fuels – fuel change without modifications on the wood + pellet boiler
- high efficiency for individual fuels – practically the same as for special pellet boilers (up to 92.3 % at rated output)
- cheaper solution – if we add up the costs of acquiring two boilers, their connection and fume extraction (chimney), we find that one boiler, although more expensive, is more economically advantageous
- small built-up area – compared to more boilers
- one chimney and flue
- ecological operation – boiler according to EN 303-5:2012 class 5, EKODESIGN 2015/1189
- subsidized boiler
- choice of door R / L (right/ left)
- The boiler is equipped with the function of automatic start of the pellet burner after the wood has burned out



DC18SP, DC25SP, DC30SPX, DC32SP



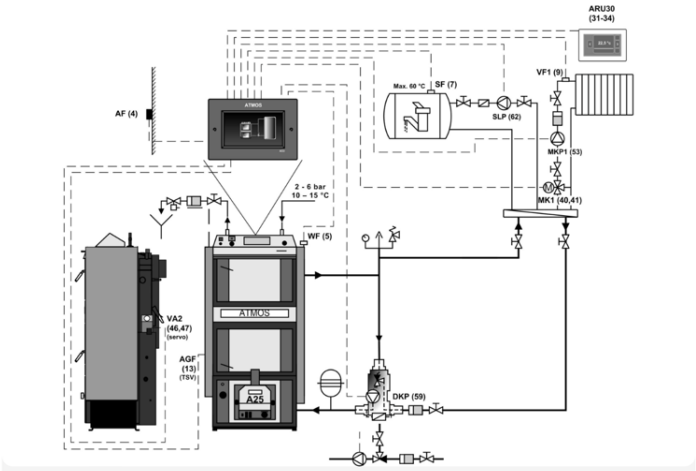
DC40SPT

Installation

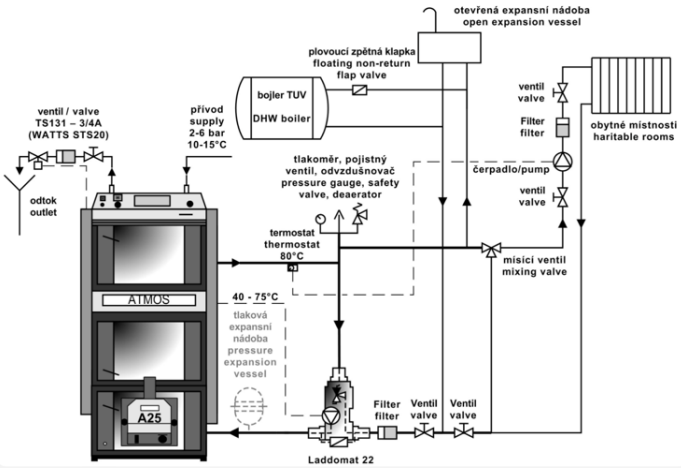
Boiler with compact AZPD storage tank and pneumatic conveying APS250S

DCxxSP boiler with a compact AZPD 300 C tank with a volume of 300 l. 195 kg of pellets are stored in this tank.

DCxxSP boiler with standard storage tank for pellets 500 l



DCxxSP boiler with accumulation tanks and equithermal control ACD 03



DCxxSP boiler with Laddomat 22

We recommend installing the boiler with Laddomat 22 or a thermo regulating valve with equalizing vessel 500 – 1000 litres. We also recommend installing the boiler with accumulating tanks of appropriate volume (e.g. 2000 litres), which allow utilising electricity for heat accumulation or connecting solar panels. If necessary, the boiler can be connected into a system without accumulating tanks. This comes into account if you use fuel oil.

Boilers regulation

The operation of the boiler is fully automatic to heat up water to required temperature with high efficiency and in a good quality of burning. All this ensure:

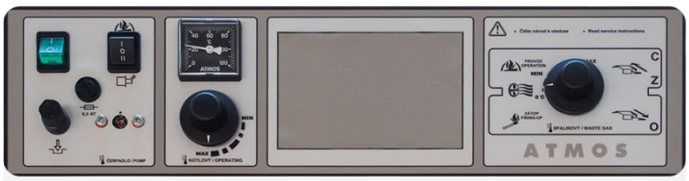
- **HONEYWELL draught regulator**
- **boiler (regulating) thermostat – fan control thermostat**
- **waste gas thermostat**
- **pump thermostat**
- **main switch and changeover switch for boiler operation**

Boilers and burners **DCxxSP(X)** (in version **Model 2018/2019)** are equipped with the function of automatic closing or opening of the air supply to the boiler/burner (using the actuator) when heating with wood or pellets. The boilers are equipped with an **AGF2 flue gas sensor and a KTF20 boiler water temperature sensor** for function of automatic burner start after the wood burns out. Than the boilers are equipped with **two KTF20 sensors (TV and TS)** for controlling the burner with two temperatures on the accumulation tank. The whole set is sold in maximum equipment, for fully automatic mode and easy installation “plug and play”.

Cooling loop against overheating and draught regulator FR124

Exhaust fan and flue gas neck

Belimo actuator and air damper



Boiler control panel with standard regulation

Panel composition:
Main off switch, safety thermostat, thermometer, regulator thermostat and combustion thermostat

Electro-mechanical regulation is an optimum solution for easy management of the operation of the boiler (ventilator). The design of the panel with standard regulation is a basic design for all produced boilers.

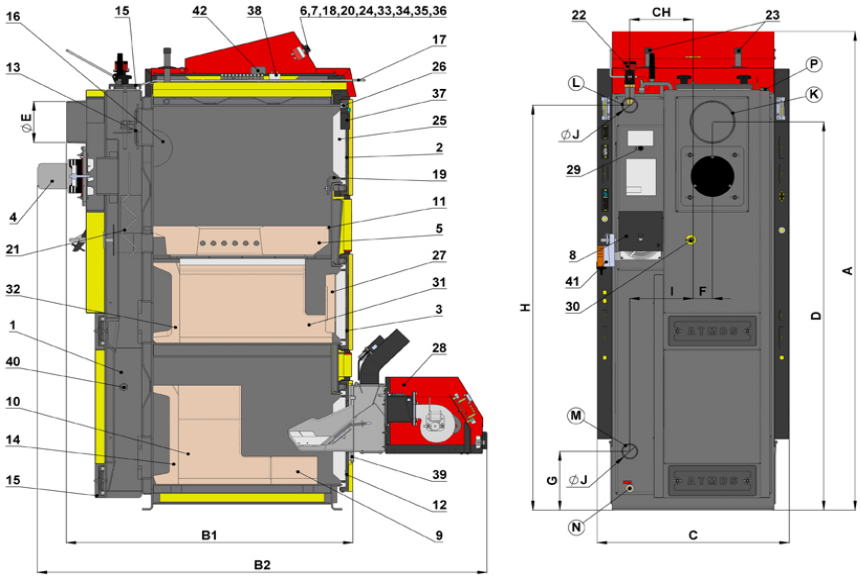
Regulace ACD 03

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.

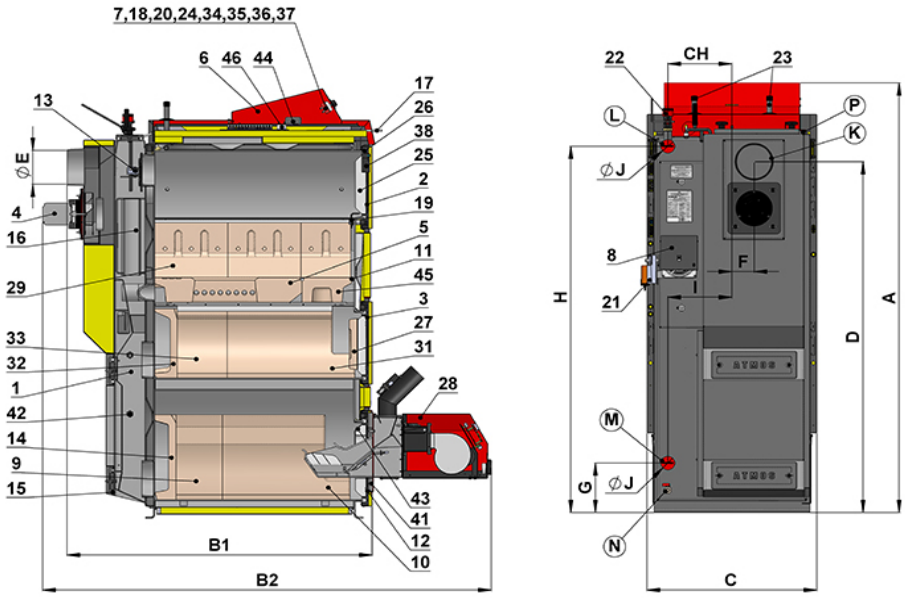
Boiler control panel with equithermal regulation
ATMOS ACD 03

Technical information

DCxxSP(X) boilers



Description for DCxxSP(X) boiler drawing			
1.	Boiler body	**25.**	Door filling – Sibral
2.	Loading door (wood heating)	**26.**	Door sealing – cord 18 x 18
3.	Ash-pan door (wood heating)	**27.**	Heatproof shaped piece – half moon (door shield)
4.	Exhaust fan	**28.**	ATMOS A25 pellet burner
5.	Heatproof shaped piece – nozzle	**29.**	Primary air regulation
6.	Control panel	**30.**	Secondary air regulation
7.	Safety thermostat (**Caution** – in overheat condition must be depressed)	**31.**	Heat proof shaped piece – spherical space (chamber for wood)
8.	Air control damper	**32.**	Heatproof shaped piece – back side of the spherical space (chamber for wood)
9.	Heat proof shaped piece – extension of the spherical space (chamber for pellets)	**33.**	Pump thermostat
10.	Heat proof shaped piece – spherical space (chamber for pellets)	**34.**	Fuse (6,3A) T6,3A/1500 – H type
11.	Sealing cord – nozzles – 12 x 12	**35.**	Flue gas thermostat
12.	Door for the pellet burner (bottom)	**36.**	Changeover switch (wood-0-pellets)
13.	Ignition (firing up) valve	**37.**	End switch with button
14.	Heatproof shaped piece – back side of the spherical space (chamber for pellets)	**38.**	Capacitor of exhaust fan – 1 µF
15.	Cleaning lid	**39.**	Sibral seal under the burner
16.	Primary air screen	**40.**	Measurement point for the combustion gases – flue gas analyzer
17.	Ignition (firing up) valve pulling rod	**41.**	BELIMO Actuator with the flap
18.	Thermometer	**42.**	Modul AD03
19.	Frame shield		
20.	Main switch with indicator light	**K**	– the flue-gas duct neck
21.	Flue gas brake (only DC30SPX)	**L**	– the boiler water outlet
22.	Draught regulator – Honeywell FR 124	**M**	– the boiler water inlet
23.	Cooling loop protecting against overheating	**N**	– filling valve pipe sleeve
24.	Boiler (regulating) thermostat – fan control thermostat	**P**	– sleeve for a sensor of the valve which regulates the cooling loop (TS 131, STS 20)



Boiler schemeDC40SPT

Description for DC40SPT boiler drawing			
1.	Boiler body	**26.**	Door sealing – cord 18 x 18
2.	Loading door (wood heating)	**27.**	Heatproof shaped piece – half moon (door shield) – (chamber for pellets)
3.	Ash-pan door (wood heating)	**28.**	ATMOS A45 SPT pellet burner
4.	Exhaust fan	**29.**	Heatproof shaped piece – side
5.	Heatproof shaped piece – nozzle	**31.**	Heat proof shaped piece – spherical space (chamber for wood)
6.	Control panel	**32.**	Heatproof shaped piece – back side of the spherical space (chamber for wood)
7.	Safety thermostat (**Caution** – in overheat condition must be depressed)	**33.**	Heatproof shaped piece – extension of the spherical space (chamber for wood)
8.	Air inlet regulating flap	**34.**	Pump thermostat
9.	Heat proof shaped piece – extension of the spherical space (chamber for pellets)	**35.**	Fuse (6,3A) 5×20/T6,3A/1500 – type H
10.	Heat proof shaped piece – spherical space (chamber for pellets)	**36.**	Flue gas thermostat
11.	Sealing cord – nozzles – 12 x 12	**37.**	Selector switch I-0-II
12.	Door for the pellet burner	**38.**	Limit switch with a push-button
13.	Ignition (firing up) valve	**41.**	Sibral sealing under burner
14.	Heatproof shaped piece – back side of the spherical space (chamber for pellets)	**42.**	Measurement point for the combustion gases – flue gas analyzer
15.	Cleaning lid	**43.**	BELIMO Actuator with the flap
16.	Tube heat exchanger	**44.**	Module AD03
17.	Ignition (firing up) valve pulling rod	**45.**	Heatproof shaped piece – extension of the nozzle (cube)
18.	Thermometer	**46.**	Capacitator for exhaust fan – 1μF
19.	Frame shield		
20.	Switch with an indicator light		
21.	Regulating flap – BELIMO actuator	**K**	– the flue-gas duct neck
22.	Air inlet regulator – Honeywell FR 124	**L**	– the boiler water outlet
23.	Cooling loop protecting against overheating	**M**	– the boiler water inlet
24.	Control thermostat (operation thermostat)	**N**	– filling valve pipe sleeve
25.	Loading door insulation – Sibral	**P**	– sleeve for a sensor of the valve which regulates the cooling loop (TS 131, STS 20)

Boiler dimensions					
	DC18SP	DC25SP	DC30SPX	DC32SP	DC40SPT
A	1695	1695	1665	1772	1755
B1	757	957	957	957	1230
B2	1301	1501	1501	1501	1792
C	643	643	643	678	680
D	1375	1375	1375	1448	1445
E	150/152	150/152	150/152	150/152	150/152
F	65	65	65	70	87
G	207	207	207	184	204
H	1436	1436	1436	1507	1507
CH	212	212	212	212	256
I	212	212	212	212	256
J	6/4″	6/4″	6/4″	6/4″	6/4″

Specification		Boiler type				
		DC18SP	DC25SP	DC30SPX	DC32SP	DC40SPT
Boiler heat output – pellets – wood	**kW**	4,5 – 15 20	6 – 20 27	6 – 20 30	6 – 20 35	9 – 30 40
Boiler thermal input – pellets – wood	**kW**	4,9 – 16,2 22,2	6,5 – 21,9 27	6,5 – 21,9 33,4	6,5 – 21,9 39,4	9,7 – 32,3 43,9
Heating surface	**m^2**	2,5	3,3	3,3	3,8	4,9
Fuel shaft volume	**dm^3 (l)**	66	100	100	140	160
Filling hole dimensions	**mm**	450 x 260	450 x 260	450 x 260	450 x 260	450 x 260
Specified chimney draft – pellets – wood	**Pa/mbar**	15 / 0,15 20 / 0,20	18 / 0,18 23 / 0,23	18 / 0,18 23 / 0,23	18 / 0,18 24 / 0,24	20 / 0,20 22 / 0,22
Max. working water overpressure	**kPa/bar**	250 / 2,5	250 / 2,5	250 / 2,5	250 / 2,5	250 / 2,5
Boiler weight	**kg**	435	531	537	596	768
Gas-outlet pipe diameter	**mm**	150 / 152	150 / 152	150 / 152	150 / 152	150 / 152
Ingress protection of electric parts	**IP**	20	20	20	20	20
Electric input – at start-up – pellets (max.) – in operation – pellets (max.) – in operation – wood (max.)	**W**	522(572) / 1042 (1092) 42 (92) 50				572 / 1092 97 50
Electrical input in standby mode	**W**	3,3	3,3	3,3	3,3	3,3
Ignition mode pellets / wood		automatic / manual				
Boiler efficiency – pellets – wood	**%**	92,5 90,1	91,2 89,9	91,2 89,9	91,2 88,9	92,8 91,0
Boiler class		5	5	5	5	5
Boiler category		1				
Operating mode		non-condensing				
Solid fuel boiler with cogeneration unit		no				
Combined device also for heating of DHW		no				

Energy efficiency class		A+	A+	A+	A+	A+
Waste gas temperature at nominal output – pellets – wood	**°C**	109 157	139 177	139 177	139 185	116,2 146,8
Waste gas combustion products flow – pellets – wood	**kg/s**	0,008 0,010	0,010 0,015	0,010 0,017	0,010 0,018	0,015 0,023
Specified fuel (preffered)	quality pellets with a diameter of 6 – 8 mm with a calorific value of 16 – 19 MJ.kg^{-1}					
Specified fuel	dry wood with a calorific value of 15 – 17 MJ / kg^{-1}, water content 12 – 20 %, diameter 80 – 120 mm					
Average fuel consumption at nominal output – wood	**kg.h^{-1}**	5,6	7,2	7,6	9,2	10,1
Per heating season		1 kW = 1 stacked cubic meter				
Maximum wood length	**mm**	330	530	530	530	730
Combustion time at nominal output – wood	**Hours**	2	3	2	2	2,5
Boiler water volume	**l**	78	109	109	160	131
Boiler hydraulic loss	**mbar**	0,22	0,23	0,23	0,23	0,23
Minimum buffer tank volume	**l**	500	500	500	500	750 – pellets 2200 – wood
Connecting voltage	**V/Hz**	230 / 50				
EKODESIGN						
Specified minimum temperature of water returning to boiler is 65 °C when in operation. **Specified boiler operating temperature is 80 – 90 °C.**						

The Pellet burner

Pellet burners for combined boilers DC18SP, DC25SP, DC30SPX, DC32SP, DC40SPT

PELLET BURNER ATMOS A25 (for models DCxxSP(X)) – Code: H0048

PELLET BURNER ATMOS A45SP (for model DC40SPT) – Code: H0352

The burners in the version for models DCxxSP(X)(T) are equipped with the function of automatic closing or opening of the air supply to the burner, by means of an actuator, when heating with wood or pellets.

Prescribed fuel: quality wood pellets (white) with a diameter of 6 to 8 mm, a length of 5 to 25 mm and a calorific value of 16 – 19 MJ.kg^{-1}.

Burner display: used to display the current status of the burner and to set its functions

Burner control: electronic control AC07X, which controls the operation of the external conveyor, two ignition coils and the fan according to the requirements of the boiler and the heating system. The electronics are protected by a boiler safety thermostat, a safety thermostat on the pellet supply to the burner, a fan speed sensor and a photocell for flame sensing. The burner operation is signaled on the electronic control display.

Fuel ignition: automatic by means of two electric ignition coils.

Basic burner functions:
Possibility to use two backup outputs **R and R2** for different applications
Possibility of connecting four different sensors **TS, TV, TK and TSV**
TS – lower sensor on the tank
TV – sensor upper on the tank

TK – boiler sensor or middle sensor on the tank
TSV – flue gas sensor or solar panel

- **burner control according to two temperatures on the expansion tank**
- **control of the boiler fan from the burner by means of a reserve output**
- **control of the boiler pump from the burner by means of a reserve output**
- **control of the solar system directly from the burner**
- **automatic burner start after wood burning for DCxxSP(X)(T) boilers**

Burners are able to burn only good quality white pellets from soft wood without bark ø 6 – 8 mm, lenght 10 – 25 mm with heating power 16 – 19 $MJ.kg^{-1}$. Burners are not able to burn pellets with high caking property in the burning chamber. In such case it is needed to clean the burning chamber in period once a day.

Appropriate conveyors for ATMOS A25 burner:

- **Auger pellet conveyor for burner ATMOS A25 – DA1500 lenght1,5 m and diameter 75 mm**
- **Auger pellet conveyor for burner ATMOS A25 – DA2000 lenght 2 m and diameter 75 mm**
- **Auger pellet conveyor for burner ATMOS A25 – DA2500 lenght 2,5 m and diameter 75 mm**
- **Auger pellet conveyor for burner ATMOS A25 – DA3000 lenght 3 m and diameter 75 mm**
- **Auger pellet conveyor for burner ATMOS A25 – DA4000 lenght 4 m and diameter 75 mm**

Appropriate conveyors for ATMOS A45 burner:

- **Auger pellet conveyor for burner ATMOS A25 – DRA50 lenght 1,7 m and diameter 80 mm**
- **Auger pellet conveyor for burner ATMOS A25 – DRA50 lenght 2,5 m and diameter 80 mm**
- **Auger pellet conveyor for burner ATMOS A25 – DRA50 lenght 4 m and diameter 80 mm**
- **Auger pellet conveyor for burner ATMOS A25 – DRA50 lenght 5 m and diameter 80 mm**