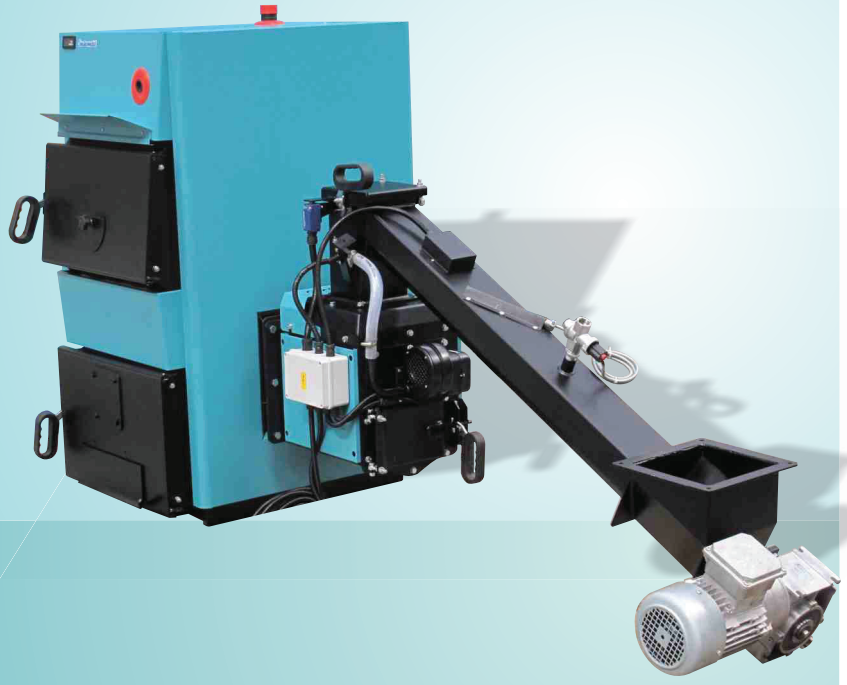
Equipment for central heating systems **BIO-CK P Unit** (nominal heat output from 25 to 100 kW) is designed for burning wood chips, wood shavings, olive pits left after olive processing (olive cake) or solid fuel. The boiler system consists of a hot water boiler BIO-CK P, a burner with the fuel feeder and a boiler digital controller. A fuel tank with a feeder should be added to the BIO-CK P Unit. This equipment is designed small and medium sized premises, as a main or as an alternative source of heat, which is currently more and more frequently the user choice. This equipment is characterised by a successful union of the latest technologies and high quality materials as well as by very simple assembly and operation. Thoroughly tested solutions ensure this equipment is safe and reliable. The option of wood chips/olive cake firing in combination with solid fuel firing is a special feature of this equipment. It is manufactured in compliance with EN 303-5 standards and in accordance with ISO 9001/2008.



CHARACTERISTICS OF EQUIPMENT BIO-CK P Unit:

- Designed for firing wood chips and shavings (size G30 to G50), olive pits, i.e. olive cake (remaining after olive processing) or solid fuel, with a power range from 25 to 100 kW.
- Maximum permitted fuel moisture content is 35%.
- A wood chip tank and transporter must also be attached.
- As standard, a wood chip tank, with volumes of 4.5 m^3, 9.0 m^3 and 13.0 m^3, is offered as additional equipment, which can be installed inside or outside the premises, and a mixer with the wood chips feeder for installation into the existing tank/room inside the premises.
- Optionally the boiler can be ordered with burner mounted on left or right side.
- The fan and electrical heater positioned in the burner, operated by the controller, ignite automatically and maintain the flame.
- A carefully sized combustion chamber with triple pass flue gas flow assure boiler operation at high efficiency. This makes the boiler very economical in use.
- The combustion chamber is made out of a high quality sheet metal (5 mm thickness).
- For solid fuel firing, the large door enables firing with big pieces of wood, as well as easy cleaning and maintenance.
- Thermal safety system can be connected in through pre-prepared apertures.
- The body of the boiler is delivered separately from the casing with thermal insulation, the burner with fuel feeder and the boiler digital controller which enables easier transportation and assembly with minimum risk.
- The basic delivery specification includes a thermometer, cleaning accessories and an ash box but not the draught regulator required for solid fuel firing.
- The BIO-CK P Unit can be connected either directly to the heating system or through a CAS accumulation tank.
- An optional extra is the fitting of a flue gas exhaust fan on the boiler outlet.
- Optionally equipment may be added for turning on / off by a phone or GSM.
- For firing with pellets, a Cm Pelet-set must be installed, including the changes to the lower boiler door to allow installation of a pellet burner.
- For firing with oil it is necessary, beside the oil burner, to install an EKO CK/CKB boiler controller. It can be placed on the upper casing lid of the boiler.

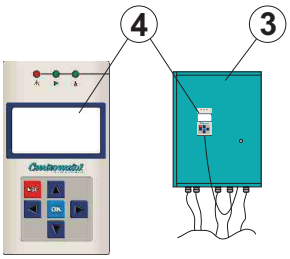
BIO-CK P Unit

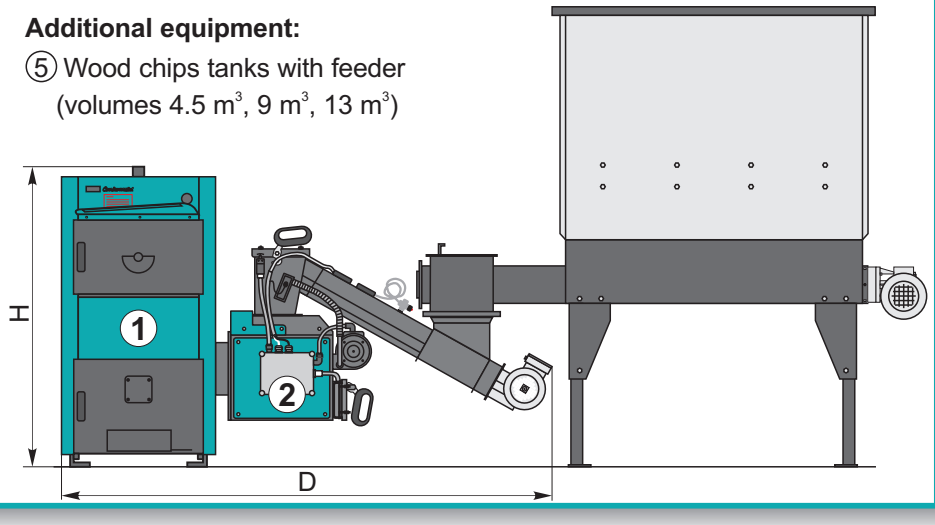
Boiler digital controller / Burner for wood chips and olive tree remains / Against return flame protection / Connection of the burner with the tank feeder /

BIO-CK P Unit COMPONENTS

① Combined boiler BIO-CK P
② Burner for wood chips
③ Electrical distribution box
④ Boiler digital controller

Additional equipment:
⑤ Wood chips tanks with feeder (volumes 4.5 m³, 9 m³, 13 m³)





ADDITIONAL EQUIPMENT:

Obligatory (wood chip firing, without CAS accumulation tank) - Wood chip tank with feeder (volumes 4.5 m³, 9 m³, 13 m³) manual 4-way mixing valve; (closed heating system) thermal safety valve, heat exchanger, safety-air vent set (2,5 bar) and expansion vessel; (open heating system) open expansion vessel.

Obligatory (wood chip firing, with CAS accumulation tank) - Wood chip tank with feeder (volumes 4.5 m³, 9 m³, 13 m³) accumulation tank CAS, 3-way thermostatic valve; (closed heating system) thermal safety valve, heat exchanger,
safety-air vent set (2,5 bar) and expansion vessel (open heating system) - open expansion vessel.

Obligatory (solid fuel firing, without CAS accumulation tank) manual 4-way mixing valve; (closed heating system) thermal safety valve, heat exchanger, safety-air vent set (2,5 bar) and expansion vessel (open heating system) - open expansion vessel.

Obligatory (solid fuel firing, with CAS accumulation tank) accumulation tank CAS, 3-way thermostatic valve; (closed heating system) thermal safety valve, heat exchanger, safety-air vent set (2,5 bar) and expansion vessel (open heating system) - open expansion vessel.

Optional – flue gas exhaust fan (the boiler digital controller includes a standard option to control the fan).

HOT WATER SUPPLY REQUIREMENTS:

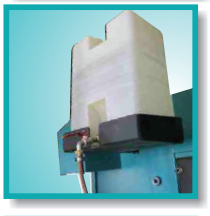
In order to meet this requirement, the boiler BIO-CK P Unit can be connected to one of our hot water heaters. We suggest a combination with the hanging hot water heaters SKB Digi or LKB Digi, with standing hot water heaters TB or with solar hot water heaters STEB, as well as with combined hot water heaters CAS-B or CAS-BS, if there is a need to build in a solar heating system in the future.

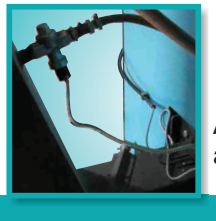
BIO-CK P Unit		25	40	60	100
Heat output range	(kW)	7,5-25	12-40	18-60	30-100
Boiler water content	(l)	78	118	140	227
Boiler mass	(kg)	293	355	450	
Boiler flue gas exhaust diam.* / height	ϕ(mm)	180/925	180/1025	200/1095	200/1215
Chimney draught	(Pa)	20	25	30	31
Boiler water Inlet / Outlet	(R)	5/4"	5/4"	2"	2"
Filling / Draining	(R)	1/2"	1/2"	1"	1"
Safety line	(R)	3/4"	3/4"	1"	1"
Flue gas temp.	(°C)	133	175	175	162
Max. operat. temperature	(°C)	90	90	90	90
Max. operat. pressure	(bar)	2,5	2,5	2,5	2,5
Depth boiler	(mm)	1020	1142	1250	1345
Height of the boiler H	(mm)	1255	1355	1435	1585
Width of the body	(mm)	620	620	690	830
Total width D	(mm)	2245	2230	2400	2860
Max. wood piece length	(mm)	500	600	650	800

** - the chimney inner diameter has to be determined according to the boiler rated thermal output and the height of the chimney and it almost always has to be bigger than the diameter of the flue gas exhaust.*

The steel hot water boilers EKO-CKS Multi, with nominal heat outputs of 150-550 kW, are designed for firing with wood chips, wood pellets, wood shavings or olive pits (olive cake remaining after olive processing). They are intended for connection to closed or open central heating systems in medium sized and large premises. Automatic operation of these boilers offers convenience for the user and a large range of applications. The boilers have an integrated system of automatic delivery and ignition of fuel, automatic ash cleaning and a cyclone to remove particles from flue gases. These boilers are notable for their use of modern technologies, high quality materials in manufacture and simple assembly as well as their control functions. The extensive fully tested technical solutions and quality control ensure these boilers are safe and reliable. The intended fuels are renewable energy resources and therefore ecologically very acceptable.

EKO-CKS Multi



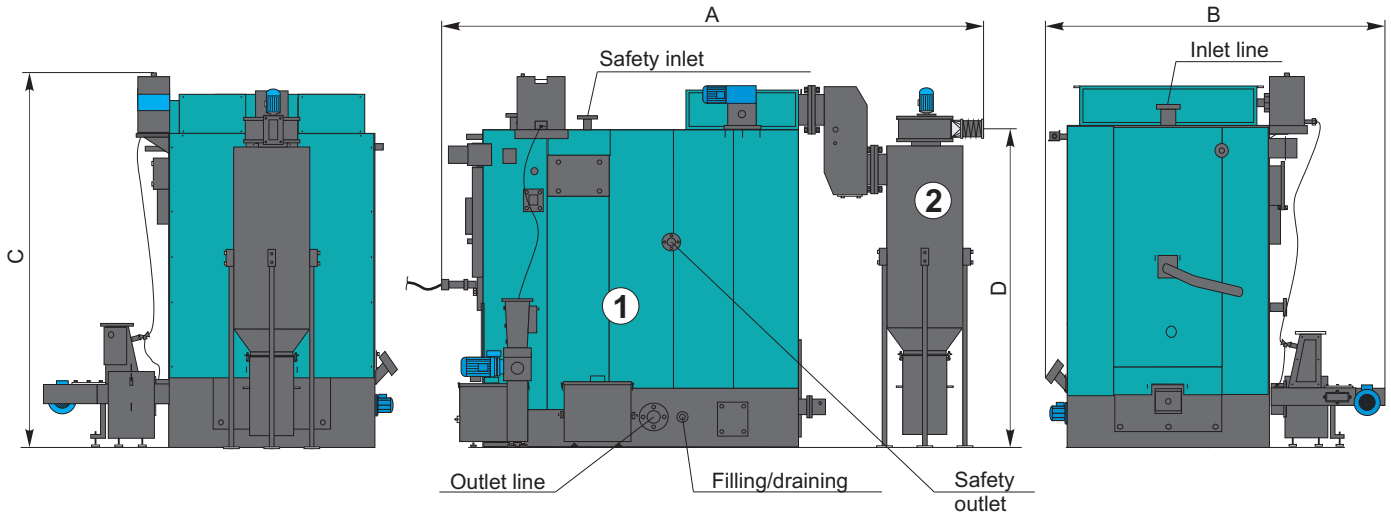


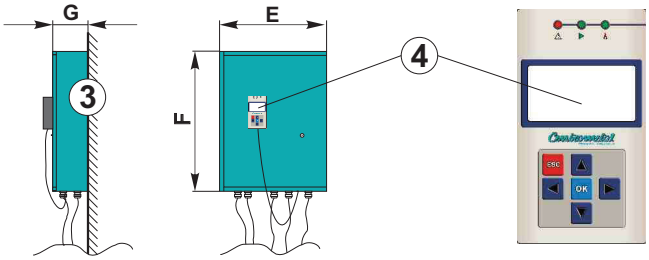
CHARACTERISTICS OF EKO-CKS Multi:

- They can fire wood pellets, wood chips and wood shavings, size of G30 to G50 and olive pits (olive residues after processing).
- Maximum humidity content in fuel is 35%.
- They are intended for use in closed or open central heating systems.
- Output range: 150 - 550 kW.
- Nominal heat output depends on fuel used for firing.
- Are equipped with:
  - automatic fuel delivery to the burner by a feeder screw
  - automatic fuel firing up
  - automatic ash cleaning
  - automatic start of the turbulators in flue gas tubes
  - separation of particles from flue gases using cyclone
  - flue gas exhaust fan
  - protection against burn back to the fuel tank
  - boiler digital regulation which controls the boiler operation and which can also control the equipment in the fuel tank and transport from tank to the boiler.
- The fuel tank, fuel mixer in the tank and fuel conveyor to the boiler feeder screw are not included in the basic delivery specification of the boiler.
- The correctly dimensioned combustion chamber assures high efficiency from the boiler making it very economical in use.
- Maximum operation pressure of the boiler is 3 bars, which enables connection to larger heating systems.
- Delivery is made in modular form: boiler body, cyclone with fan, casing with thermal insulation, electrical cabinet with boiler digital controller and cleaning accessories enabling simple transport, easy installation in the boiler room and minimised damage risks.
- Produced in compliance with the European standard EN 303-5.

Automatic firing / Distribution electrical cabinet with digital boiler controls / Fuel feeder, automatic ash cleaning /Burn back protection

BASIC DIMENSIONS





1. Boiler body EKO-CKS Multi
2. Cyclone CC + fan
3. Electrical distribution box
4. Boiler digital controller

ADDITIONAL EQUIPMENT:

Obligatory – a fuel tank with a mixer and fuel feeder to the boiler, boiler safety pump or a 3-way safety mixing valve, driven by a motor with a boiler pump (sized for operation from the boiler to the separator or a hydraulic switch.

Optional - remote reporting of boiler status.

HOT WATER SUPPLY REQUIREMENTS:

In order to meet this requirement, the boiler EKO-CKS Multi can be connected to one of our hot water heaters. Therefore we suggest a combination with the hanging hot water heaters SKB Digi or LKB Digi, with standing hot water heaters TB or with solar hot water heaters STEB, as well as with combined hot water heaters CAS-B or CAS-BS, if there is a need to build in a solar heating system in the future.

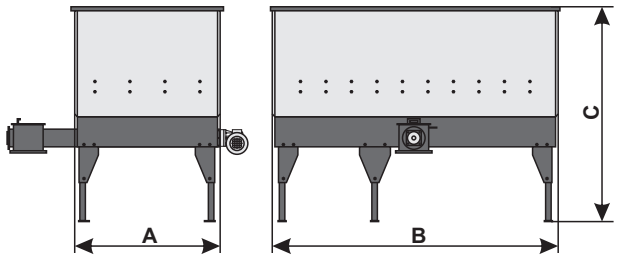
EKO-CKS Multi		150	300	420	550
Heat output range	(kW)	150	300	420	550
Minimum heat output	(kW)	45	90	126	165
Boiler water content	(l)		1930		
Boiler mass	(kg)				
Flue gas exhaust diam.* / height D	fi (mm)	160 x 160 / 1065	202 / 2060	202 / 2060	
Chimney draught	(Pa)	10	10	10	10
Inlet / outlet	(DN)	80	80	100	100
Filling / Draining	(R)	1"	1"	1"	1"
Flue gas temp.	(°C)	160	160	160	160
Max. operat. temperature	(°C)	90	90	90	90
Max. operat. pressure	(bar)	3,0	3,0	3,0	3,0
Safety pump (suggestions)		Grundfus UPS 32-80			
Total depth A	(mm)		4720		
Total width B	(mm)		2915		
Total height C	(mm)		2625		
Depth G	(mm)	260	260	260	260
Width E	(mm)	720	720	720	720
Height F	(mm)	1090	1090	1090	1090

** - the chimney inner diameter has to be determined according to the boiler rated thermal output and the height of the chimney and almost always it has to be bigger than the diameter of the flue gas exhaust.*

WOOD CHIP TANKS WITH A MIXER AND FEEDER

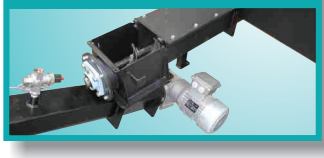
These systems are designed for the storage and supply of wood chips to the firing equipment of a BIO-CK P Unit. They are made so that they can be placed in a covered area or outside a building. They are usually delivered for positioning next to BIO-CK-P Unit (250 mm away from the connection to the burner feeder) and optionally at a greater distance. They are equipped with a feed screw, an electric motor with gearbox and a hydraulic wood chip collector. Tanks are filled from the upper side after opening the lid. Wood chips may have a moisture content of up to 35%. The tank equipment is operated by the digital control functions of the BIO-CK P boiler unit in its standard configuration.

BASIC DIMENSIONS



EL. MOTOR WITH GEARBOX

CONNECTION TO BIO-CK P Unit



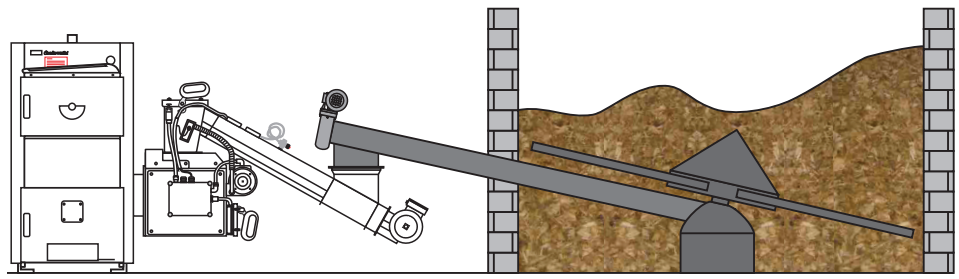
HYDRAULIC MIXER

Wood chips tank		4,5	9	13
Volume	m^3	4,5	9	13
Weidth A	(mm)	1320	2570	2570
Depth G	(mm)	2570	2570	3905
Height C	(mm)	2195	1990	2215

WOOD CHIP FEEDING SYSTEMS FROM A STORAGE - ROOM (ENCLOSED SPACE)

These systems are designed for wood chip transfer (max. moisture content up to 35 %) from a storage room (enclosed space) to the firing equipment of a BIO-CK P Unit. They are equipped with a feed screw, an electric motor with gearbox and a rotating plate with springs for wood chip collection. The system is operated by the digital control functions of the BIO-CK P Unit in its standard configuration.

WOOD CHIP FEEDING SYSTEMS FROM STORAGE - ROOM



MIXER