

HEATING TECHNIQUE

**Centrometal**

## WOOD CHIP/PELLETS HEATING SYSTEMS

EKO-CKS Multi Plus 170 - 580 kW



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## SHORT DESCRIPTION:

Hotwater steel boilers **EKO CKS Multi Plus** are designed for burning wood chips P16A/B-P45A,M35 (G30/W35, G50/W35) or wood pellets with diameter 6 and 8 mm class A1 and A2.

- Class 5 boilers
- Manufactured with nominal heat powers from 170, 250, 340, 450 and 580 kW
- The boiler must be connected with an accumulation tank (min. 12 lit/kW)
- Max. operation temperature 95 ° C
- They can be installed in open and closed heating systems

### The basic scope of delivery consists of:

- Boiler with thermal insulation
- Staired combustion chamber with moving elements to insure lower sensitivity due to the change of fuel quality
- Electrical cabinet with digital boiler regulation with touch screen
- Automatic ash removal from the combustion chamber
- Cyclone with ash container for the separation of flying ashes out of the flue gases, centrifugal fan with rpm controller
- Conveyor-1 with motor for the fuel supply into the combustion chamber
- Connection box with built in backfire flap (RSE) and backfilling sensor
- Thermal protection of the boiler is made with 2 tube heat exchangers with thermal safety valves
- Lambda probe

### Basic control unit includes :

- Regulation by a lambda probe of the primary and secondary air, rpm change of the underpressure fan at the flue gas exit (from the boiler) and the correction of the feeding conveyor-2
- Pressure control in the combustion chamber
- Boiler return flow protection (steering the actuator responsible for the return temperature increase and pump control between the boiler and buffer tank)
- Steering/controlling of: feeding conveyor-2 for wood chip or wood pellets, conveyor-3 for wood chip or wood pellets, conveyor-3 for supply of wood chips or wood pellets from the fuel container, fuel mixer in the fuel container, conveyor for ash removal from the flue gas chamber and with other additional equipment listed below.
- Control of the buffer tank heating, DHW tank and DHW recirculation
- 1 boiler temperature sensor, 1 return flow sensor, 2 buffer tank sensors, 1 outdoor temperature sensor, 1 DHW sensor, 1 DHW recirculation sensor

### Obligatory equipment :

- Feeding conveyor-2 for wood chips/pellets
- Feeding conveyor-2 extension for wood chips/pellets
- Return flow protection with 3 way mixing valve and actuator and boiler pump
- Wood chip/pellets mixer separately and auger/conveyor-3 for the supply of wood chip/pellets from the fuel tank or mixer of wood chip/pellets with auger/conveyor-3 or wood chip tank with mixer and auger/conveyor-3
- Wood chip/pellets mixer conveyor extension (if needed)
- Buffer (accumulation) tank

### Additional equipment:

- Automatic pneumatic air cleaning of boiler flue heat exchanger passages
- Compressor with compressor kit
- Automatic ash removal system out of the flue gas chamber (by help of a screw)
- Security/safety elements set min/max boiler water pressure
- CM2K-B – module for 2 heating circuits (max. 4 x CM2K-B module)
- CSK – room corrector (possible installation only together with the CM2K module)
- CAL – alarm module
- CM-GSM – communication module
- CM WiFi-box – boiler operation monitoring by PC, tablet computer or smartphone
- CMNET – cascade manager
- Hot water tank

The boiler is manufactured according the EU norms EN 303 – 5 :2012 , ISO 9001 and ISO 14001



Article	Code
EKO-CKS Multi Plus 170 (set)	34282
EKO-CKS Multi Plus 250 (set)	34284
EKO-CKS Multi Plus 340 (set)	34285
EKO-CKS Multi Plus 450 (set)	34286
EKO-CKS Multi Plus 580 (set)	34287

## OBLIGATORY EQUIPMENT:

### Feeding conveyor-2 for wood chips/pellets:

Boiler feeding unit for wood chips/pellet supply, mounted on the boiler conveyor-1.

It consists of a conveyor with minimum required length with an electric actuator and fuel level sensor which is controlled by the basic boiler control unit.

	Article	Code
	Feeding conveyor-2 for wood chips/pellets 170–250 kW	42297
	Feeding conveyor-2 for wood chips/pellets 340 kW	42210
	Feeding conveyor-2 for wood chips/pellets 450–580 kW	42595

### Feeding conveyor-2 extension for wood chips/pellets:

It consists of a closed channel with spiral and axle.

To be ordered only if a longer conveyor-2 length is needed. Max. additional length is 4m (greater length on request).

	Article	Code
	Feeding conveyor-2 extension for wood chips/pellets 170-250 kW, L=1 m	42620
	Feeding conveyor-2 extension for wood chips/pellets 340 kW, L=1 m	42621
	Feeding conveyor-2 extension for wood chips/pellets 450-580 kW, L=1 m	42622

### Boiler return flow protection:

Maintaining the boiler return flow temperature at min. 60°C, protect boiler against condensation.

Offered pump comply the distance between the boiler and accumulation tank (piping length flow + return) max. 40 meters.

Inner diameter of pipes, valves, fittings and connections of accumulation tank must match inner diameter of boiler connections.

Only allowed narrowing of the inner diameter of pipes is by pump connections.

Shut off bodies must not be shut-off valves, because off to big pressure drop, but allowed are gate valves, ball valves and butterfly valves.

#### Boiler return flow protection 170 kW:

It consists of:

- 3-way mixing valve DN 50 (11498)
- actuator with 60 seconds opening/closing time (39660)
- pump **Wilо Yonos MAXO 40/0,5-12** (45918)

	Article	Code
	Boiler return flow protection 170 kW	42863

#### Boiler return flow protection 250 kW:

It consists of:

- 3-way mixing valve DN 80 (11516)
- actuator with 60 seconds opening/closing time (39660)
- pump **Wilо Yonos MAXO 50/0,5-9** (45919)

	Article	Code
	Boiler return flow protection 250 kW	42864

#### Boiler return flow protection 340 kW:

It consists of:

- 3-way mixing valve DN 80 (11516)
- actuator with 60 seconds opening/closing time (39660)
- pump **Wilо Yonos MAXO 65/0,5-12** (49521)

	Article	Code
	Boiler return flow protection 340 kW	42865

### Boiler return flow protection 450 kW:

It consists of:

- 3-way mixing valve DN 100 (11517)
- actuator with 60 seconds opening/closing time (39660)
- pump **Wilо Yonos MAXO 80/0,5-6** (45922)/in cascade **Wilо Yonos MAXO 65/0,5-16** (43119)

	Article	Code
		Boiler return flow protection 450 kW
	Boiler return flow protection 450 kW cascade 2 boiler	46375

### Boiler return flow protection 580 kW:

It consists of:

- 3-way mixing valve DN 100 (11517)
- actuator with 60 seconds opening/closing time (39660)
- pump **Wilо Yonos MAXO 80/0,5-12** (45923)

	Article	Code
		Boiler return flow protection 580 kW

### Wood chips/pellets mixer with conveyor-3 for storage room:

For wood chips supply or wood pellets feeding.

Basic version consists of spring arms and conveyor with partially open channel, which is located within the storage room and 2 m long conveyor with closed channel outside the storage room and an own electric actuator. After connection of the fuel mixer with the conveyor-3 and its connection to the boiler, it is necessary to make a wooden floor construction, which will follow the angle of inclination of the feeding conveyor.

	Article	Code
	Wood chips/pellet mixer with conveyor-3 for storage room 2x2 m	25225
	Wood chips/pellet mixer with conveyor-3 for storage room 2,5x2,5 m	25226
	Wood chips/pellet mixer with conveyor-3 for storage room 3x3 m	25227
	Wood chips/pellet mixer with conveyor-3 for storage room 3,5x3,5 m	25228
	Wood chips/pellet mixer with conveyor-3 for storage room 4x4 m	25229
	Wood chips/pellet mixer with conveyor-3 for storage room 4,5x4,5 m	34002
	Wood chips/pellet mixer with conveyor-3 for storage room 5x5 m	30169

### Wood chips/pellets mixer without conveyor-3 for storage room with el. control set:

	Article	Code
	Wood chips/pellet mixer without conveyor-3 for storage room 2x2 m	51939
	Wood chips/pellet mixer without conveyor-3 for storage room 2,5x2,5 m	51940
	Wood chips/pellet mixer without conveyor-3 for storage room 3x3 m	51941
	Wood chips/pellet mixer without conveyor-3 for storage room 3,5x3,5 m	51942
	Wood chips/pellet mixer without conveyor-3 for storage room 4x4 m	51944
	Wood chips/pellet mixer without conveyor-3 for storage room 4,5x4,5 m	51943
	Wood chips/pellet mixer without conveyor-3 for storage room 5x5 m	51946

### Wood chips container with mixer, conveyor-3 and electric actuator:

	Article	Code
	Wood chips container 2,8 m <sup>3</sup> with mixer and conveyor-3	34991
	Wood chips container 5,5 m <sup>3</sup> with mixer and conveyor-3	28339
	Wood chips container 9,0 m <sup>3</sup> with mixer and conveyor-3	32441

### Extension of the wood chips/pellet mixer conveyor-3:

It consists of a closed channel with spiral and axle. Need to be ordered only if you need more then 2 m length of the conveyor-3. Max. additional length is 4 m (greater length on request).

	Article	Code
	Extension of the wood chips/pellet mixer conveyor-3 L=1 m	25230

### Wood chips/pellet feeding conveyor-3 with gearmotor placed in the seasonal tank:

	Article	Code
	Wood chips/pellet feeding conveyor-3 with gearmotor placed in the seasonal tank:	
	- with l=3 m length and a channel (170-580 kW) - feeding conveyor 3	54155
	- with l=4 m length and a channel (170-580 kW) - feeding conveyor 3	54156
	- with l=5 m length and a channel (170-580 kW) - feeding conveyor 3	54157
	- with l=6 m length and a channel (170-580 kW) - feeding conveyor 3	54158
	- with l=7 m length and a channel (170-580 kW) - feeding conveyor 3	54159
	- with l=8 m length and a channel (170-580 kW) - feeding conveyor 3	54160
	- with l=9 m length and a channel (170-580 kW) - feeding conveyor 3	54161
	- with l=10 m length and a channel (170-580 kW) - feeding conveyor 3	54162

### Accumulation (buffer) tank:

It increases the amount of heating water, which is used to store of excess heat produced, for which there is no current demand. This ensures better quality combustion and less intervals ignition/shutdown of the boiler, which directly affects the efficiency of the system as well as its lifetime. It includes all the necessary connections to connect primary and secondary heating circuit. It consists of the body of buffer tank, thermal insulation thickness of 100 mm and one coating that is supplied separately, 4 thermometers, 4 sleeves for temperature sensors. Obligatory minimum volume of accumulation tank is 12 lit/kW.

	Product	Code
	Accumulation tank CAS 1001 (3 bar)	16716
	Accumulation tank CAS 1501 (3 bar)	16717
	Accumulation tank CAS 2001 (3 bar)	16718
	Accumulation tank CAS 3001 (3 bar)	20533
	Accumulation tank CAS 4001 (3 bar)	20534
	Accumulation tank CAS 5002 (3 bar)	35778

	Product	Code
	Accumulation tank CAS 1006 (6 bar)	42868
	Accumulation tank CAS 1506 (6 bar)	42869
	Accumulation tank CAS 2006 (6 bar)	42870
	Accumulation tank CAS 3006 (6 bar)	42871
	Accumulation tank CAS 4006 (6 bar)	42872
	Accumulation tank CAS 5006 (6 bar)	42873

### Additional connection for accumulation tank:

	Product	Code
	Additional connection for accumulation tank DN 50 PN6, 1 piece	42601
	Additional connection for accumulation tank DN 65 PN6, 1 piece	42602
	Additional connection for accumulation tank DN 80 PN6, 1 piece	42603
	Additional connection for accumulation tank DN 100 PN6, 1 piece	42604
	Additional connection for accumulation tank DN 125 PN6, 1 piece	42605

### ADDITIONAL EQUIPMENT:

#### Automatic pneumatic air cleansing of boiler flue heat exchanger passages:

It consists of built-in valves on upper front door of the boiler, in front of the boiler heat exchanger flue passage tubes, pressure tank with a valve for the automatic condensate drain and addition to the basic control unit for installation in el. cabinet.

Remark:

It is obligatory to provide compressed air (separate compressor or connect to an existing pneumatic system), operational 24h.

	Article	Code
	Automatic pneumatic air cleansing EKO-CKS Multi Plus 170 kW (A)	54224
	Automatic pneumatic air cleansing EKO-CKS Multi Plus 250 kW (A)	54110
	Automatic pneumatic air cleansing EKO-CKS Multi Plus 340 kW (A)	54321
	Automatic pneumatic air cleansing EKO-CKS Multi Plus 450 kW (A)	54318
	Automatic pneumatic air cleansing EKO-CKS Multi Plus 580 kW (A)	54320

#### Compressor Kaeser with compressor kit:

It consists of:

- compressor, automatic condensate drainage, pressure switch and addition el. board

	Article	Code
	Compressor Kaeser with compressor kit	46430

### Compressor kit for instalation without compressor from this list:

It consists of:

- pressure regulator compressed air 5 bar with pressure gauge, automatic condensate drainage, pressure switch and addition el. board

	Article	Code
	Compressor kit for instalation without compressor from this price list:	
	- EKO-CKS Multi Plus 140 - 340 kW	46531
	- EKO-CKS Multi Plus 450 - 580 kW	46532

### System for automatic ash extraction from the flue gas chamber (using the spiral):

	Article	Code
	System for aut. ash extraction from the flue gas chamber Multi Plus 170 kW	42907
	System for aut. ash extraction from the flue gas chamber Multi Plus 250 kW	42908
	System for aut. ash extraction from the flue gas chamber Multi Plus 340 kW	42909
	System for aut. ash extraction from the flue gas chamber Multi Plus 450 kW	42910
	System for aut. ash extraction from the flue gas chamber Multi Plus 580 kW	42911

### Safety elements set of the minimum and maximum pressure:

- obligatory for all boilers larger than 300 kW in accordance with EN 12828
  - it is composed of maximum pressure limiter, minimum pressure limiter and manometer, drain valve and the valve for insurance against accidental closing
  - it is mounted on the main flow of the boiler with welding near the boiler as much as possible
  - basic control unit of the boiler is designed for el. connection with this safety elements, and in the case of achieving the maximum or minimum pressure, the boiler goes into safe extinguishing process.
- This set does not include a safety valve which is obligatory for boilers installed in the closed heating system.

	Article	Code
	Safety elements set of boiler water pressure	39351

### Module for two heating circuits CM2K-B:

- enables the control up to two heating circuits according to the outer temperature and the heating curve (guidance up to two mixing valves with actuators and up to two heating pumps)
  - possible connection with up to two room correctors CSK (additional equipment)
  - possible connection up to 4 modules CM2K-B (up to 8 heating circuits)
- The delivery includes: 1x modul + 2 pieces x OPV (main flow sensor) + 1 piece UTP cable.

	Article	Code
	Module for two heating circuits CM2K-B	33583

### Room corrector - CSK:

- enables the correction of the set temperature in the room (according to the set temperature on the boiler control unit) and enables the shut down of its heating circuit
  - installation only with the CM2K module
- The delivery includes: 1 piece x room corrector.

	Article	Code
	Room corrector - CSK	32680

### Alarm module - CAL:

- module with alarm sound or light signal to inform about an error or warning from the boiler
- The delivery includes: 1 piece x module with built-in light and speaker.

	Article	Code
	Alarm module - CAL	30821



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