

HEATING TECHNIQUE

Centrometal

WOOD CHIPS/PELLETS HEATING SYSTEMS

EKO-CKS Multi Plus 170 - 580 kW



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SHORT DESCRIPTION:

EKO-CKS Multi Plus are steel hot water boilers 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 output from 170, 250, 340, 450 and 580 kW
- the boiler must be connected with an accumulation tank (min. 12 l/kW)
- maximal operating overpressure: 4 bar
- maximal operating temperature: 93°C (boiler shutdown: 95°C)
- the boilers are designed for the installation in open or closed heating systems

The basic boiler delivery (OO (basic equipment)) consists of:

- boiler with the thermal insulation
 - staged combustion chamber with moving elements to insure lower sensitivity due to the change of fuel quality
 - 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 actuator for the fuel supply into the combustion chamber
 - connection box with built-in backfire flap (RSE) and backfilling sensor
 - boiler thermal protection which is made with 2 tube heat exchangers with thermal valves
 - lambda probe
- electrical enclosure with digital boiler controller and touch screen:
 - steering/controlling primary and secondary air, rpm change of the underpressure fan at the flue gas exit from the boiler and correction of the feeding conveyor-2 using lambda probe
 - control pressure in the combustion chamber
 - steering the boiler return flow protection (steering the actuator for the increase of temperature return and pump between the boiler and the accumulation tank)
 - steering of: feeding conveyor-2 for wood chips or wooden pellets, conveyor-3 for wood chips or wooden pellets from the fuel container, conveyor for ash removal from the flue gas chamber as well as other listed additional equipment
 - steer of the accumulation tank heating, DHW tank and DHW recirculation
 - it consists of: 1 boiler temperature sensor, 1 return flow sensor, 2 accumulation tank sensors, 1 external temperature sensor, 1 DHW sensor, 1 DHW recirculation sensor

Obligatory equipment:

- feeding conveyor-2 for wood chips or wooden pellets
- feeding conveyor-2 extension for wood chips or wooden pellets (if needed)
- the boiler return flow protection by 3-way mixing valve with actuator and boiler pump
- wood chips/wooden pellets mixer separately, electric set for mixer control and conveyor-3 for the supply of wood chips/pellets from the fuel container or wood chips/wooden pellets mixer with conveyor-3 or chips tank with mixer and conveyor-3
- wood chips/wooden pellets mixer conveyor extension (if needed)
- accumulation tank CAS
- set of safety elements min/max boiler water pressure

Additional equipment:

- CM2K - module for two heating circuits (max. 4xCM2K modules)
- CSK - room corrector (possible installation only with CM2K module)
- CSK-Touch - digital room corrector (possible installation only with CM2K module)
- CAL - alarm module
- CM-GSM - communication module
- CM WiFi-box - system for monitoring the boiler by PC, tablet or smartphone
- CMNET - cascade manager
- DHW tank
- additional conveyor-2

The boiler is manufactured according to the EU norms EN 303-5:2012, ISO 9001 i ISO 14001.

- Legend:**
- **OO** (basic equipment)
 - **PN** (pneumatic + ash removal from the flue gas chamber)
 - **KS + K** (compressor set with compressor)
 - **KS - K** (compressor set without compressor)

	Article	code
	EKO-CKS Multi Plus 170 (OO)	64014
	EKO-CKS Multi Plus 250 (OO)	64017
	EKO-CKS Multi Plus 340 (OO)	64020
	EKO-CKS Multi Plus 450 (OO)	64023
	EKO-CKS Multi Plus 580 (OO)	64026

	Article	code
	EKO-CKS Multi Plus 170 (OO + PN + KS + K)	64015
	EKO-CKS Multi Plus 250 (OO + PN + KS + K)	64018
	EKO-CKS Multi Plus 340 (OO + PN + KS + K)	64021
	EKO-CKS Multi Plus 450 (OO + PN + KS + K)	64024
	EKO-CKS Multi Plus 580 (OO + PN + KS + K)	64027

	Article	code
	EKO-CKS Multi Plus 170 (OO + PN + KS - K)	64016
	EKO-CKS Multi Plus 250 (OO + PN + KS - K)	64019
	EKO-CKS Multi Plus 340 (OO + PN + KS - K)	64022
	EKO-CKS Multi Plus 450 (OO + PN + KS - K)	64025
	EKO-CKS Multi Plus 580 (OO + PN + KS - K)	64028

OBLIGATORY EQUIPMENT:

Feeding conveyor-2 for wood chips/pellets:

Boiler feeding unit for wood chips/pellets supply, installed on the boiler conveyor-1. It consists of a conveyor with minimum required length with an electro motor drive and fuel level sensor which is controlled by the basic boiler controller.

	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/additional conveyor-2 extension for wood chips/pellets (if needed):

It consists of a closed channel with spiral and axle.

It is ordered only if longer conveyor-2 is needed. Maximal additional length is 4m (greater length on request).

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

Return flow protection:

Maintaining the boiler water return flow temperature at min 60°C, that protect the boiler against condensation. Offered pump comply the distance between the boiler and accumulation tank max. 40 meters. Inner diameter of pipes, valves, fittings and connections of accumulation tank must match inner diameter of boiler (flow+return) connections. Narrowing of the inner diameter of pipes is allowed only at the pump connection. Shut off bodies must not be shut-off valves (due to excessive pressure drop), but gate valves, ball valves and flaps are allowed.

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 **Wilo 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 **Wilo 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 80 (11516)
- actuator with 60 seconds opening/closing time (39660)
- pump **Wilo Yonos MAXO 65/0,5-12** (45921)

	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 **Wilo Yonos MAXO 80/0,5-6** (45922)/in cascade **Wilo Yonos MAXO 65/0,5-16** (43119)

	Article	code
	Boiler return flow protection 450 kW	42866
	Boiler return flow protection 450 kW 2 boilers cascade	46375

Boiler return flow protection 580 kW:

It consists of:

- 3-way mixing valve 100 (11517)
- actuator with 60 seconds opening/closing time (39660)
- pump **Wilo Yonos MAXO 80/0,5-12 (PN6)** (45923)

	Article	code
	Boiler return flow protection 580 kW	42867

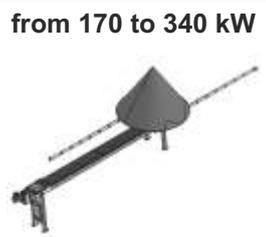
Wood chips/pellets mixer with conveyor-3 for the storage room:

It is intended for the supply of wood chips/pellets from the tank-storage room into the conveyor-2. Wood chips/pellets mixer is equipped with spring arms and the conveyor-3 has a partially open channel inside the tank-storage room and a certain length of the closed channel outside the tank-storage room. After the mixer and conveyor-3 installation and its connection to the conveyor-2 is done, it is necessary to make a wooden floor construction, which follow the angle of inclination of the conveyor-3.

Option 1:

Wood chips/pellets mixer for the storage room (independent) without conveyor-3:

Wood chips/pellets mixer has a separate electric motor drive and works independently of the conveyor-3.

	Article	code
	from 170 to 340 kW	
	Wood chips/pellets mixer without conveyor for storage room 2x2m	51939
	Wood chips/pellets mixer without conveyor for storage room 2.5x2.5m	51940
	Wood chips/pellets mixer without conveyor for storage room 3x3m	51941
	Wood chips/pellets mixer without conveyor for storage room 3.5x3.5m	51942
	Wood chips/pellets mixer without conveyor for storage room 4x4m	51944
	Wood chips/pellets mixer without conveyor for storage room 4.5x4.5m	51943
Wood chips/pellets mixer without conveyor for storage room 5x5m	51946	

Wood chips/pellet mixer has a separate electric motor drive and works independently of the conveyor-3.

from 450 to 580 kW	Article	code
	Wood chips/pellet mixer without conveyor for the storage room 2x2m	73513
	Wood chips/pellet mixer without conveyor for the storage room 2.5x2.5m	73514
	Wood chips/pellet mixer without conveyor for the storage room 3x3m	73515
	Wood chips/pellet mixer without conveyor for the storage room 3.5x3.5m	73516
	Wood chips/pellet mixer without conveyor for the storage room 4x4m	73517
	Wood chips/pellet mixer without conveyor for the storage room 4.5x4.5m	73518
	Wood chips/pellet mixer without conveyor for the storage room 5x5m	73519

Electric set for mixer control:

El. set installed in el. boiler cabinet.

	Article	code
	Electric set for mixer control – nominal motor current I=0,91-1,5 A (U=400 V)	75080

Conveyor-3 for transporting wood chips/pellets from a seasonal tank (room) with gear motor:

	Article	code
	Conveyor-3 wood chips/pellets for boilers over 100 kW - for room 2x2m	35242
	Conveyor-3 wood chips/pellets for boilers over 100 kW - for room 2,5x2,5m	75036
	Conveyor-3 wood chips/pellets for boilers over 100 kW - for room 3x3m	75037
	Conveyor-3 wood chips/pellets for boilers over 100 kW - for room 3,5x3,5m	75038
	Conveyor-3 wood chips/pellets for boilers over 100 kW - for room 4x4m	75039
	Conveyor-3 wood chips/pellets for boilers over 100 kW - for room 4,5x4,5m	75040
	Conveyor-3 wood chips/pellets for boilers over 100 kW - for room 5x5m	75041

Option 2:

Wood chips/pellet mixer with conveyor-3 for the storage room:

The conveyor-3 electric motor drive simultaneously start conveyor-3 and wood chips/pellet mixer. The mixer cannot work if the conveyor-3 is not working at the same time.

from 170 to 340 kW	Article	code
	Wood chips/pellet mixer with 2 m conveyor for the storage room 2x2m	25225
	Wood chips/pellet mixer with 2 m conveyor for the storage room 2.5x2.5m	25226
	Wood chips/pellet mixer with 2 m conveyor for the storage room 3x3m	25227
	Wood chips/pellet mixer with 3.7 m conveyor for the storage room 3.5x3.5m	25228
	Wood chips/pellet mixer with 3.7 m conveyor for the storage room 4x4m	25229
	Wood chips/pellet mixer with 4.6 m conveyor for the storage room 4.5x4.5m	34002
	Wood chips/pellet mixer with 4.6 m conveyor for the storage room 5x5m	30169

from 450 to 580 kW	Article	code
	Wood chips/pellet mixer with 2 m conveyor for the storage room 2x2m	73506
	Wood chips/pellet mixer with 2 m conveyor for the storage room 2.5x2.5m	73507
	Wood chips/pellet mixer with 2 m conveyor for the storage room 3x3m	73508
	Wood chips/pellet mixer with 3.7 m conveyor for the storage room 3.5x3.5m	73509
	Wood chips/pellet mixer with 3.7 m conveyor for the storage room 4x4m	73510
	Wood chips/pellet mixer with 4.6 m conveyor for the storage room 4.5x4.5m	73511
	Wood chips/pellet mixer with 4.6 m conveyor for the storage room 5x5m	73512

Wood chips/pellet mixer conveyor-3 extension (if needed):

It consists of a closed channel with spiral and axle.

The length of the conveyor-3 with extension may be max. 5.5 m.

	Article	code
	Wood chips/pellet mixer conveyor-3 extension L=1m	25230

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

	Article	code
	Wood chips tank 2.8 m ³ with mixer and conveyor-3	34991
	Wood chips tank 5.5 m ³ with mixer and conveyor-3	28339
	Wood chips tank 9.0 m ³ with mixer and conveyor-3	32441

Accumulation 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 is delivered with all necessary connections, which enables connection to the primary and secondary heating circuit. It consists of the body of tank, thermal insulation thickness of 100 mm and one coating that is supplied separately, 4 thermometers, 4 sleeves for temperature sensors. Minimum volume of accumulation tank is 12 l/kW.

	Article	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	

	Article	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 (if needed):

	Article	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	

Set of safety elements minimum/maximum boiler water pressure:

- it is obligatory for all boilers larger than 300 kW according to the norm 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 boiler main flow with welding as close as possible to the boiler
 - basic boiler controller is designed for el. connection with this safety elements and in case of achieving the maximum or minimum pressure the boiler goes into safe extinguishing process
- This set do not include a safety valve, which is obligatory for boilers installed in the closed heating system.

	Article	code
	Set of safety elements	39351

ADDITIONAL EQUIPMENT:

CM2K - module for two heating circuits (max. 4xCM2K modules):

- it 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)
 - it is possible connection with up to 2 room correctors CSK (additional equipment)
 - it is possible connection with up to 4 CM2K modules into series (up to 8 heating circuits)
- The delivery includes: 1x CM2K module, 2x NTC5K (main flow/DHW sensor), 1x UTP cable 5m, 3x dowel+screw, 10x straps, 1x technical instructions

  	Article	code
	Module for two heating circuits CM2K	56229

CSK - room corrector (installation is possible only with CM2K module):

- it enables the correction of the set temperature in the room (according to the temperature, which is set on the boiler controller)
 - it enables shut down of that heating circuit
 - installation is possible only to the CM2K module
- The delivery includes 1x room corrector.

	Article	code
	Room corrector - CSK	32680

CSK-Touch - digital room corrector (installation is possible only with CM2K module):

- color touch screen
- The delivery includes: 1x room corrector CSK-Touch

	Article	code
	Room corrector - CSK-Touch:	59477

CAL - alarm module

- module, with sound or light signal, which inform about an boiler error or warning
- The delivery includes: 1x module with built-in light and speaker

	Article	code
	Alarm module - CAL	30821

CM-GSM - communication module

* SMS communication:

- information of the boiler status/warnings/error through mobile (GSM) network by a SMS message
- information of the boiler warnings/error through SMS message on the chosen language
- information of the boiler warnings/error by a call on the mobile with a siren sound
- information of the boiler status - operation phase, boiler temperature/temperature of the connected sensors
- switching the boiler on/off by a SMS message

* GPRS communication:

- preview of current status/warnings/error and boiler's history via GPRS through a web portal on a computer/tablet/smartphone
- The delivery includes: 1x module, 1x UTP cable
- * SIM card with included calls (SMS) / data traffic (GPRS) is required for proper operation

 	Article	code
	Communication module by SMS/GPRS - CM-GSM	37798

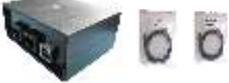
CM WiFi-box - system for boiler monitoring by PC, tablet or smartphone

- preview of current status/warnings/error and boiler's history using Wi-Fi via web-portal on a computer/tablet/smartphone
 - switching the boiler on/off, temperature adjusting
- The delivery includes: 1x module, 1x UTP cable.
Proper operation requires wireless Internet access.

	Article	code
	CM WiFi-box	48819

CMNET - cascade manager

- it enables cascade management between 2 and 8 boilers
 - for the cascade of 2 boilers = 1x CMNET, for the cascade from 3 to 8 boilers = each boiler needs one CMNET
 - connection to the boiler is performed with UTP cables
- The delivery includes: 1x module, 2x UTP cables

	Article	code
	Cascade manager - CMNET	31139

Additional conveyor-2:

It is installed on the feeding conveyor-2.

	Article	code
	Additional conveyor-2 - Multi Plus 170-340	73481
	Additional conveyor-2 - Multi Plus 450-580	73479

Feeding/additional conveyor-2 extension for wood chips/pellets (if needed):

It consists of a closed channel with spiral and axle.

It is ordered only if longer conveyor-2 is needed. Maximal additional length is 4m (greater length on request).

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

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