



The competence brand for energy saving systems

# Oil fired condensing boilers COB / COB-CS ComfortLine

COB for central heating  
COB-CS for central heating with stratification cylinder



**Stiftung Warentest**  
**Testsieger GUT (1,6)**  
Ölbrennwertkessel COB-20  
Im Test:  
10 Ölbrennwertkessel, davon  
zwei Testsieger mit Note 1,6  
**Ausgabe 5/2008**



## Oil fired condensing boiler COB

for central heating; can be combined with a freestanding cylinder, e.g. SEM-1

## Oil fired condensing boiler COB-CS

for central heating; with enamelled steel stratification cylinder



The benefits of the Wolf oil fired condensing boilers:

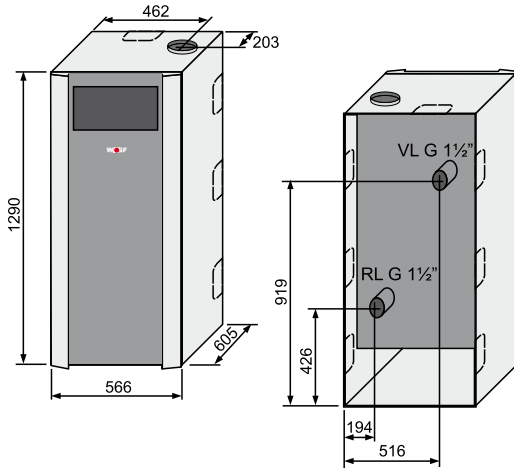
- Extremely clean and efficient combustion with complete condensation of the flue gases and high standard efficiency up to 105% (Hi) / 99% (Hs) for the best possible energy utilisation
- Low power demand
- Suitable for low sulphur and standard fuel oil EL
- Two-stage blue flame burner for open and balanced flue operation
- High quality heat exchanger made from a robust aluminium:silicone alloy, with a long service life, low maintenance, and no minimum water circulation volume required
- Ready assembled, encased and packed on a pallet for simple transport and easy handling
- Can be mounted directly on the wall, therefore low space requirement; no side clearances required; convenient access to all components from the front, and easy operation and maintenance
- Control unit fully wired; maybe used for various individual heating system applications.
- 5 year warranty  
2 year warranty on electrical and moving parts
- Meets the limits set for the "Blue Angel"
- 4 star ★★★★★ energy efficiency designation

Benefits for the COB-CS:

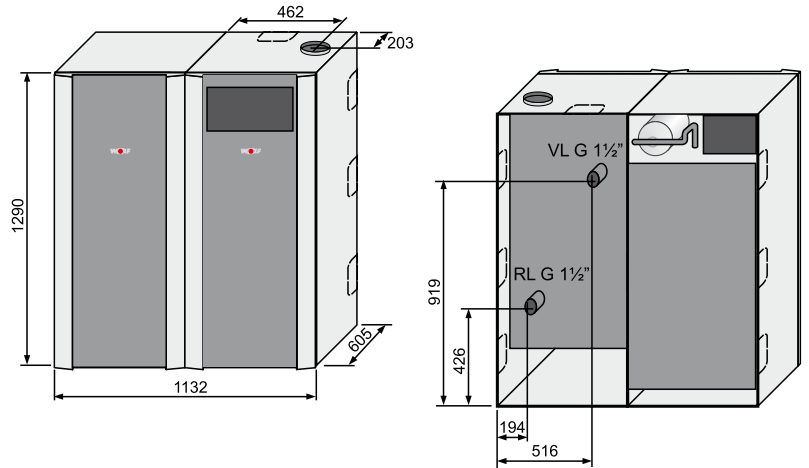
- Convenient DHW heating, cylinder capacity 160 l; comparable with a 240/260 l cylinder
- "DHW turbo" with a new routing and distribution system for hot and cold water inside the stratification cylinder ensure a calm, radial water distribution for excellent DHW performance (patented)
- Hot water always available - even after filling a bath
- High savings in operating costs through efficient DHW heating and innovative insulation technology
- Utilising condensing technology with cylinder heating for the highest energy efficiency
- Compact design as a condensing boiler and stratification cylinder, fully wired and hydraulically ready to connect, for the lowest assembly and installation costs

# Specification

## COB-20 / COB-29

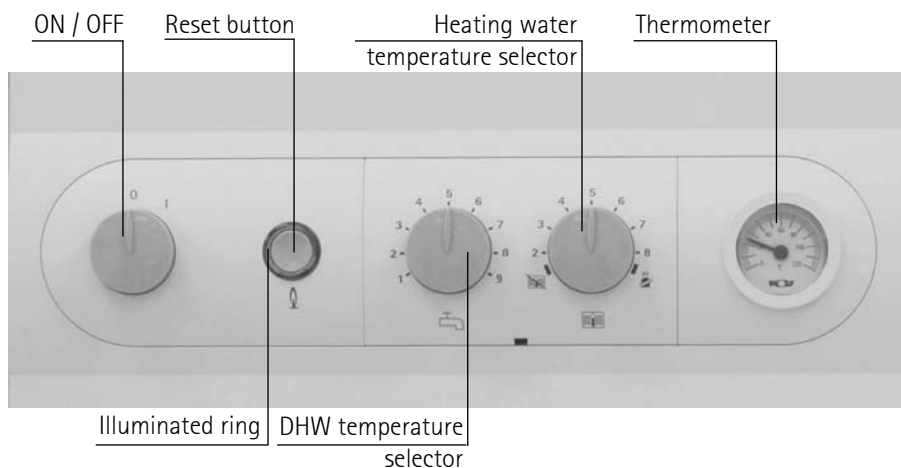


## COB-20/CS / COB-29/CS



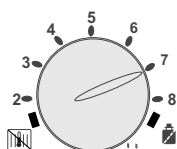
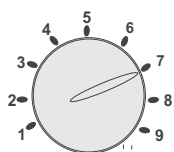
Oil fired condensing boiler		COB-20	COB-20/CS	COB-29	COB-29/CS
Rated output at 80/60 °C, stage 1/2	kW	13.1 / 19.0	13.1 / 19.0	18.5 / 28.2	18.5 / 28.2
Rated output at 50/30 °C, stage 1/2	kW	13.9 / 20.0	13.9 / 20.0	19.6 / 29.6	19.6 / 29.6
Rated load, stage 1/2	kW	13.5 / 19.6	13.5 / 19.6	19.0 / 29.0	19.0 / 29.0
Oil throughput, stage 1/2	kg/h	1.15 / 1.66	1.15 / 1.66	1.60 / 2.45	1.60 / 2.45
Rated capacity CS (equivalent)	l	-	160 (240)	-	160 (260)
Constant cylinder output CS	kW / l/h	-	20 / 490	-	29 / 710
Performance factor CS	NL60	-	4.5	-	5.0
DHW output CS	l/10 min	-	280	-	300
Standby input CS	kWh/24h	-	1.47	-	1.47
Max. permissible cold water supply pressure CS	bar	-	10	-	10
Minimum anode power, protective magnesium anode	mA	-	> 0.3	-	> 0.3
Outside diameter, heating flow	G	1 1/2"	1 1/2"	1 1/2"	1 1/2"
Outside diameter, heating return	G	1 1/2"	1 1/2"	1 1/2"	1 1/2"
Condensate connection		1"	1"	1"	1"
Oil connection, flow/return hoses	G	3/8"	3/8"	3/8"	3/8"
Cold water inlet	G	-	3/4"	-	3/4"
DHW connection	G	-	3/4"	-	3/4"
DHW circulation connection	G	-	3/4"	-	3/4"
Boiler weight	kg	92	92	99	99
Cylinder weight	kg	-	76	-	76
Balanced flue connection	mm	80/125	80/125	80/125	80/125
Balanced flue system	type	B23, B33, C33(x), C43(x), C53(x), C63(x), C83(x)			
Fuel oil		Fuel oil EL standard, low sulphur fuel oil EL or bio-oil B5			
Nozzle		Danfoss 0.40 / 80° S LE		Danfoss 0.55 / 80° S LE	
Fuel oil filter		Siku max. 40 µm			
Pump pressure, stage 1/2	bar	8.5 ± 1 / 16.8 ± 2.5			
Maximum negative pressure in oil lines	bar	-0.3	-0.3	-0.3	-0.3
Flow temperature, factory setting	°C	80	80	80	80
Max. flow temperature	°C	85	85	85	85
Heating water pressure drop at ΔT=20K / 10K	mbar	6 / 21	6 / 21	6 / 21	6 / 21
Max. permissible boiler pressure	bar	3	3	3	3
Heat exchanger water content	l	8	8	9.5	9.5
Standard efficiency at 40/30 °C (H <sub>i</sub> / H <sub>s</sub> )	%	105 / 99	105 / 99	105 / 99	105 / 99
Standard efficiency at 75/60 °C (H <sub>i</sub> / H <sub>s</sub> )	%	101 / 96	101 / 96	101 / 96	101 / 96
Efficiency at rated load at 80/60 °C (H <sub>i</sub> / H <sub>s</sub> )	%	97 / 92	97 / 92	97 / 92	97 / 92
Efficiency at 30% partial load and TR=30 °C (H <sub>i</sub> / H <sub>s</sub> )	%	103 / 97	103 / 97	103 / 97	103 / 97
Boiler standby loss qB at 70 °C (EnEv)	%	0.75	0.75	0.55	0.55
Flue gas mass flow, stage 2	g/s	9.06	9.06	13.33	13.33
Flue gas temperature 50/30 - 80/60 °C, stage 2	°C	49 - 69	49 - 69	55 - 76	55 - 76
Available fan draught, stage 2	Pa	65	65	105	105
Flue gas mass flow, stage 1	g/s	6.28	6.28	9.05	9.05
Flue gas temperature 50/30 - 80/60 °C, stage 1	°C	40 - 61	40 - 61	40 - 64	40 - 64
Available fan draught, stage 1	Pa	45	45	55	55
Electrical connection	V~/Hz	230/50	230/50	230/50	230/50
Fitted fuse (medium slow)	A	5	5	5	5
Power consumption, stage 1 / stage 2	W	99/139	99/139	129/178	129/178
Protection		IP20	IP20	IP20	IP20
Condensate volume at 40/30 °C	l/h	1.6	1.6	2.2	2.2
Condensate pH value		approx. 3	approx. 3	approx. 3	approx. 3
CE ID		CE-0085BS0326			

# Standard controls



## Illuminated indicator ring as status display

Display	Explanation
Flashing green	Standby (power supply ON, burner OFF)
Constant green	Heat demand: pump running, burner OFF
Flashing yellow	Emissions test mode
Constant yellow	Burner ON, flame steady
Flashing red	Fault



### DHW temperature selector

The setting range 1 - 9 corresponds to a cylinder temperature of 15 to 65 °C. Combined with a control thermostat, the adjustment at the DHW temperature selector is disabled; instead the temperature is selected at the boiler control thermostat.

### Heating water temperature selector

The setting range 2 - 8 corresponds to a heating water temperature of 20 to 80 °C. Combined with a BM programming module, the adjustment at the heating water temperature selector is disabled.

## Settings




### Winter mode (position 2 to 8)

The circulation pump operates in heating mode.




### Summer mode

Switch set to  circulation pump OFF (heating OFF); only DHW heating, frost protection, pump anti-seizing protection enabled, i.e. the circulation pump runs for approx. 30 s every 24 hours.



### Emissions test mode

Turning the switch to position  lets the boiler operate at maximum output. The illuminated indicator ring flashes yellow for 15 minutes or until the maximum flow temperature has been exceeded.



### Thermometer

The heating water temperature is displayed.

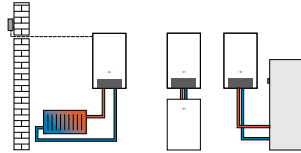


Standard control unit; part of the standard delivery of the oil fired condensing boiler

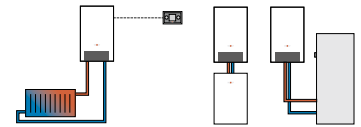
Two-wire eBUS cable



**BM programming module (incl. outside temperature sensor) as weather-compensated control thermostat**



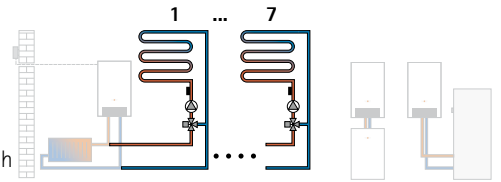
**BM programming module with wall mounting base (accessory) as remote control**



- Time programs for DHW and central heating
- LCD with background illumination
- Easy plain prompts guide through the menus
- Control by rotary selector with key function
- Four function keys for frequently used functions (heating, DHW, setback, help)
- Installation either inside the boiler control unit or, as remote control, in a wall mounting base
- Option for mixer module MM
- Only one programming unit is required for multi-boiler systems
- May be extended with mixer module MM (up to 7 mixer circuits)
- Fault diagnosis

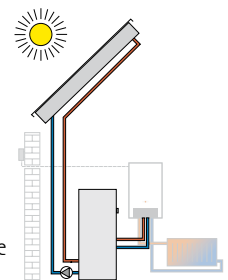
### Mixer module MM

- Extension module for regulating one mixer circuit
- Weather-compensated flow temperature control
- Easy configuration of the controller through selection of pre-defined system options
- BM programming module to clip into boiler, or extendable with wall mounting base as remote control
- Rast-5 connection technology
- Incl. flow temperature sensor



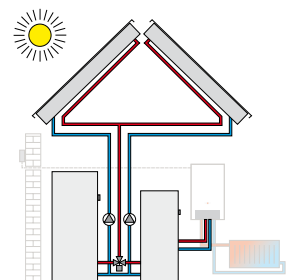
### Solar module SM1

- Extension module for regulating one solar circuit
- In conjunction with Wolf boilers, greater energy savings through intelligent cylinder reheating, i.e. blocking cylinder reheating when there is sufficient solar yield
- Temperature differential controller for one heat consumer
- Maximum cylinder temperature limit
- Display of the set and actual values on the BM programming module
- Integral hours run meter
- Optional connection of heat meters
- Rast-5 connection technology
- Incl. collector sensor and cylinder sensor, each with sensor well



### Solar module SM2

- Extension module for regulating a solar heating system including up to 2 cylinders and 2 collector arrays, incl. 1 collector sensor, 1 cylinder sensor, each with sensor well
- Easy configuration of the controller through selection of pre-defined system options
- In conjunction with Wolf boilers, greater energy savings through intelligent cylinder reheating, i.e. blocking cylinder reheating when there is sufficient solar yield
- Heat meter function
- Display of the set and actual values on the BM programming module
- eBus interface with automatic energy management
- Rast-5 connection technology



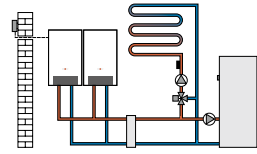
# Control accessories

Two-wire eBUS cable



## Cascade module KM

- Extension module for control of systems with low loss header or cascade configuration
- Applicable to control units of oil fired condensing boilers (4 appliances)
- Easy configuration of the controller through selection of pre-defined system options
- Suitable for regulating one mixer circuit
- Programming module BM may either be plugged in or used as remote control with wall mounting base
- 0-10V input for building control network systems; fault signal output 230V
- eBus interface with automatic energy management
- Rast-5 connection technology



**Radio clock (DCF 77 signal) with outside temperature sensor** for automatic time adjustment.



**Radio clock (DCF 77 signal)** for automatic time adjustment.



**External wireless sensor**  
(only in conjunction with a receiver for external wireless sensor and remote control, part no. 27 44 209)



**Wireless receiver for wireless outside temperature sensor and wireless remote control**  
incl. radio clock (DCF 77 signal)



**Wireless remote control**  
(only in conjunction with a receiver for external wireless sensor and remote control).  
Max. one wireless remote control per mixer circuit.



**WRS – Remote service system**  
for direct or remote access to the control system via PC and for transferring fault text messages, consisting of: Interface module ISM1 and remote service software "WRS-Soft".

# Installation accessories

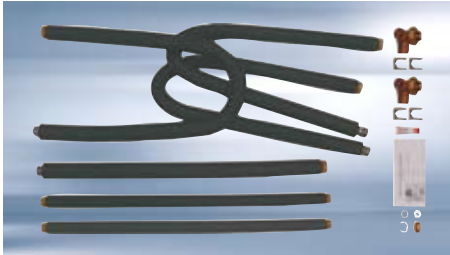
We recommend making the connection to the heating system with the following parts from the Wolf accessories range.



## COB connection set, adjacent to the wall

comprising:

- 2 cross pieces, each with one connection
- 2 brackets
- 1 corrugated stainless steel pipe 1", length 1300 mm
- 1 corrugated stainless steel pipe 1", length 800 mm
- 1 silicon grease tube



## COB connection set with CS, adjacent to the wall

comprising:

- 2 cross pieces, each with two connections
- 4 brackets
- 3 corrugated stainless steel pipes 1", length 1300 mm
- 1 corrugated stainless steel pipe 1", length 800 mm
- 2 corrugated stainless steel pipes 3/4", length 800 mm
- 1 silicon grease tube
- 1 trimming set 3/4"



## COB connection set, adjacent to the wall, for cylinders up to SEM-1-750 and SE-2-750

comprising:

- 2 cross pieces, each with two connections
- 3 corrugated stainless steel pipes 1", length 1300 mm
- 1 corrugated stainless steel pipe 1", length 800 mm
- 4 brackets
- 1 silicon grease tube
- 1 pipe bend
- 1 pump UPS 25-60
- 2 double nipples G 1" AG - G 1"
- 1 elbow with air vent
- 6 flat gaskets 1"
- 2 flat gaskets 1 1/2" EPDM
- 1 Adaptor fittings G 1 1/2" (fem.) on G 1" (male)



## CS accessory set for cold water

comprising:

- 1 expansion vessel, 8 litres
- 1 cold water connection pipe to the expansion vessel
- 2 double nipples 3/4"
- 1 trimming set 3/4"



## CS DHW circulation pump accessory set

comprising:

- 1 DHW circulation pump
- 1 corrugated stainless steel pipe 3/4"
- 1 trimming set 3/4"



## Pipe assembly

comprising:

- 1 circulation pump
- 2 thermometers in flow and return
- 2 ball valves in flow and return
  - incl. / excl. mixer
  - with manifold for 2 or 3 pipe assemblies



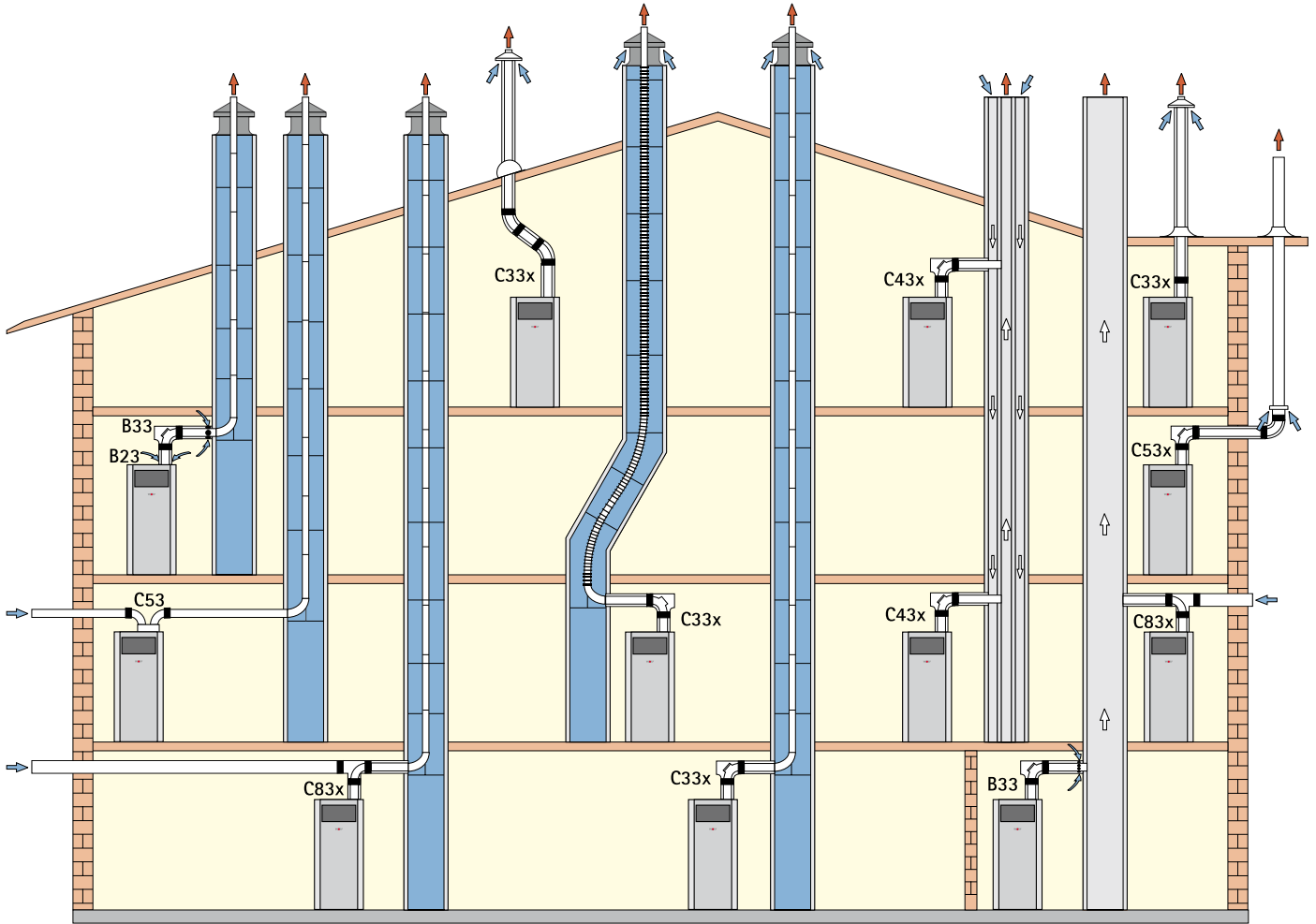
## Safety assembly 1"

Additional accessories:

**Neutralisation, condensate lifting system, wall mounting frame for pipe assembly**  
see also "Heating systems" pricelist



# Balanced flue routing



## Types of connection

Boiler	Type <sup>1), 2)</sup>	Operating mode		To be connected to ..				
		Open flue	Balanced flue	Moisture-resistant chimney	Balanced flue chimney	Balanced flue	Acc. to Build Regs cert. LAF	Moisture-resistant flue
COB	B23, B33, C53, C33x, C43x, C53x, C63x, C83x	yes	yes	B33, C53, C83x	C43x	C33x, C53x	C63x	B23, C53x, C83x

<sup>1)</sup> Marking "X" indicates that all flue pipe components are surrounded by combustion air and fulfil increased tightness requirements.

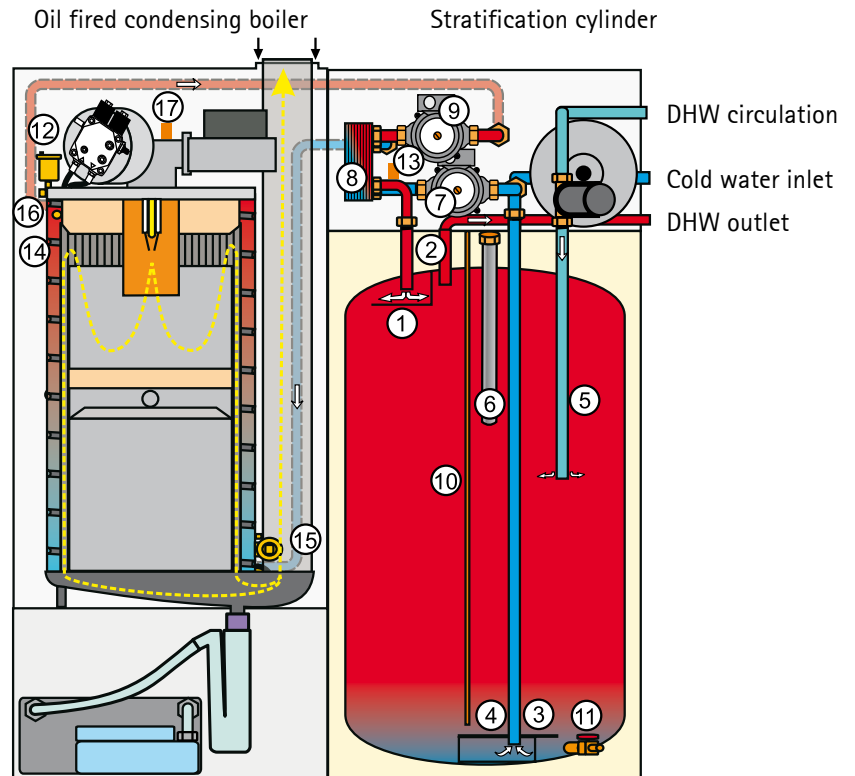
<sup>2)</sup> Versions B23, B33 take the combustion air directly from the surroundings (open flue)  
Version C takes the combustion air from the outside via a sealed system (balanced flue)



# Central heating - DHW heating options

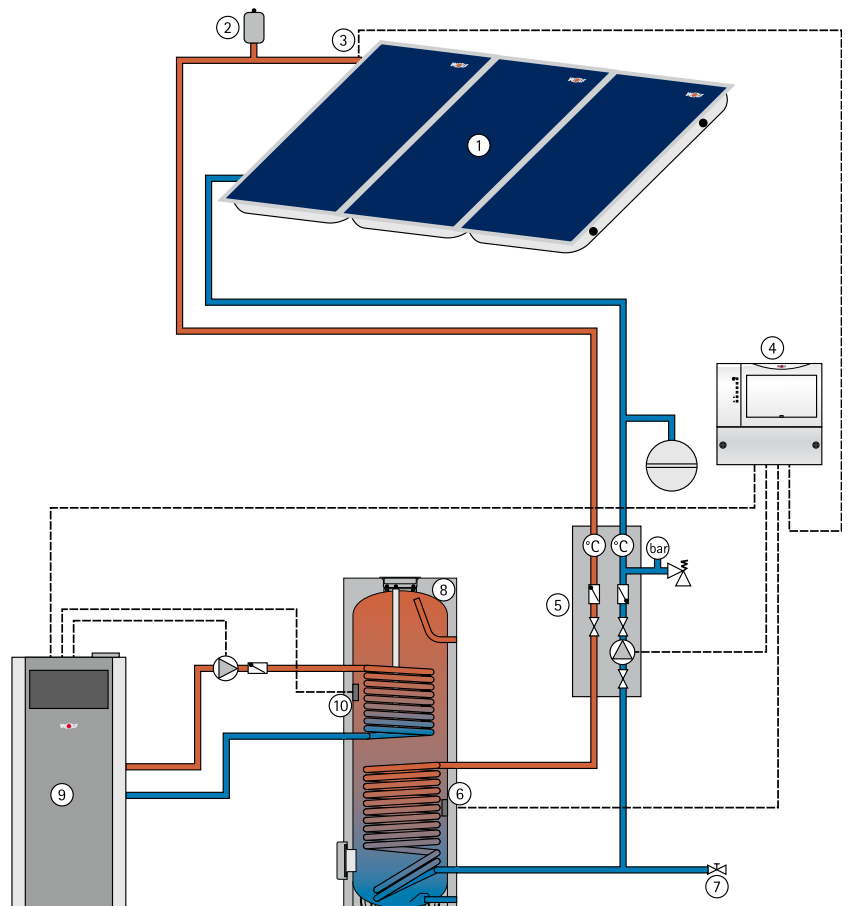
## COB-CS oil fired condensing boiler with stratification cylinder

- 1 Cylinder heating from above with deflector and divider
- 2 DHW outlet at the highest point
- 3 Cold water supply with control and distribution device
- 4 Cold water draw-off for cylinder heating
- 5 DHW circulation line
- 6 Protective magnesium anode
- 7 Stratification pump, controlled
- 8 Plate-type heat exchanger in the cylinder
- 9 Cylinder primary pump
- 10 Sensor well for cylinder temperature sensor
- 11 Boiler drain (standard delivery)
- 12 Automatic air vent valve (standard delivery)
- 13 Cylinder heating sensor
- 14 Flow temperature sensor
- 15 Flue gas temperature sensor
- 16 High limit safety cut-out
- 17 Flame monitoring (IRD)



## COB with solar cylinder SEM-1 and one collector array

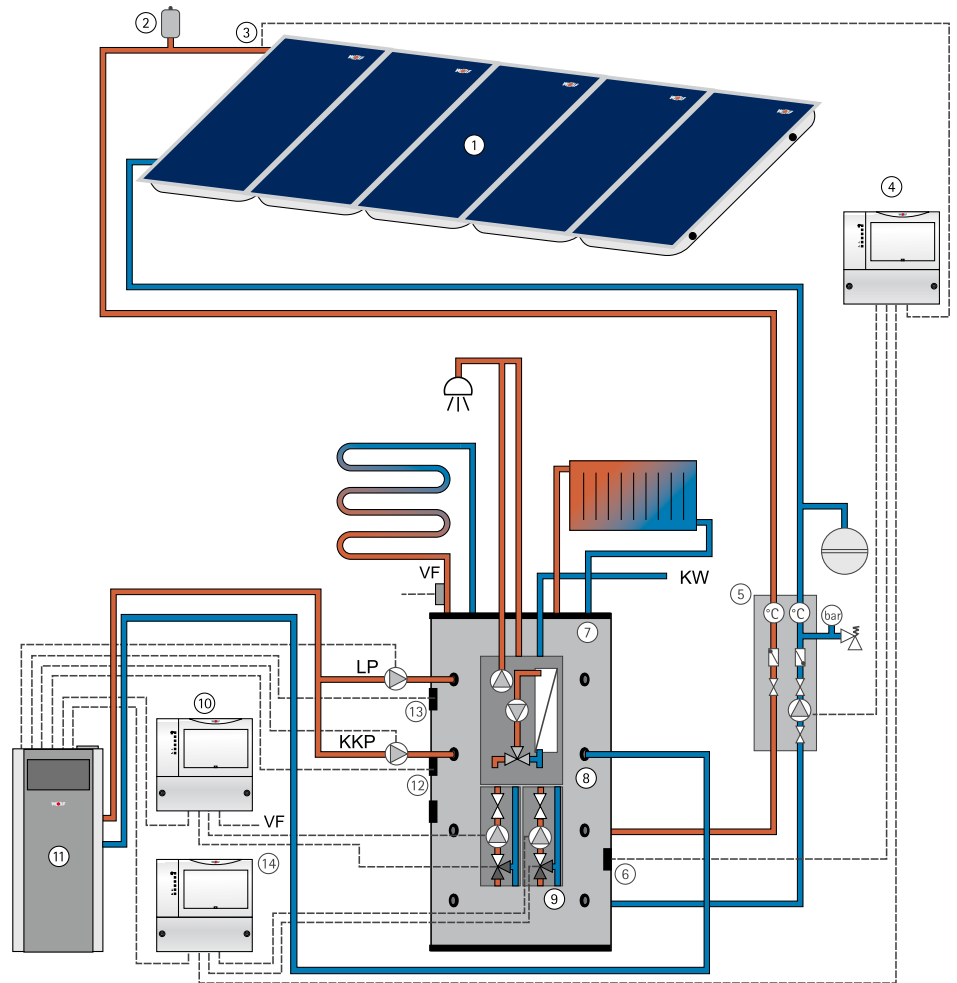
- 1 Collector array
- 2 Air vent trap
- 3 Collector sensor
- 4 Solar module SM1
- 5 Pump/fitting assembly 5
- 6 Solar control unit cylinder sensor
- 7 Fill and drain valve
- 8 SEM-1 solar cylinder
- 9 Condensing boiler COB with BM programming module
- 10 Cylinder sensor, heating water



# Central heating - DHW heating options

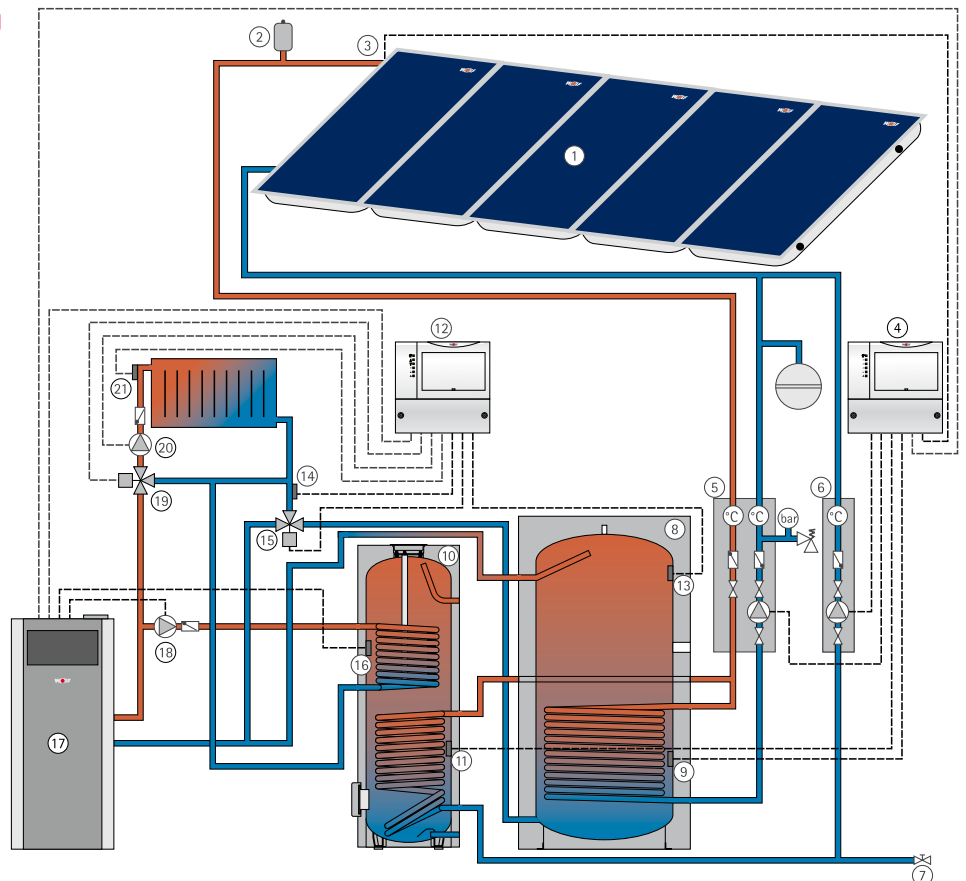
## Solar DHW heating and central heating backup with stratification cylinder BSP

- 1 Collector array
- 2 Air vent trap
- 3 Collector sensor
- 4 Solar module SM1
- 5 Pump/fitting assembly 5
- 6 Solar control unit cylinder sensor
- 7 Stratification cylinder BSP
- 8 Fresh water module for DHW heating
- 9 Heating circuit assembly, mixing valve circuit assembly
- 10 Mixer module MM (config. 4)
- 11 Condensing boiler COB with BM programming module
- 12 Collective sensor
- 13 Cylinder sensor
- 14 Mixer module MM



## Solar DHW heating and central heating backup with solar cylinder SEM-1 and buffer cylinder SPU-2-W

- 1 Collector array
- 2 Air vent trap
- 3 Collector sensor
- 4 Solar module SM2
- 5 Pump/fitting assembly
- 6 Pump/fitting assembly extension
- 7 Fill and drain valve
- 8 Buffer cylinder SPU-2-W
- 9 Solar circuit cylinder sensor (buffer cylinder)
- 10 DHW cylinder
- 11 Solar circuit cylinder sensor (DHW)
- 12 Mixer module MM (config. 4)
- 13 Buffer cylinder sensor
- 14 Return temperature sensor
- 15 Three-way diverter valve
- 16 Cylinder sensor, heating water
- 17 Condensing boiler COB with BM programming module
- 18 Cylinder heating pump, heating water
- 19 Mixing valve motor
- 20 Mixing valve circuit pump
- 21 Flow sensor mixing valve circuit



Item	Pce.		Price each	Total price
		<p><b>Oil fired condensing boiler COB / COB-CS ComfortLine</b></p> <p>Tested according to DIN EN 303 / DIN EN 304 / DIN EN 15034 / DIN EN 15035, as well as EU Directive 92/42/EEC (Efficiency Directive), 73/23/EEC (Low Voltage Directive), and 2004/108/EEC (EMC Directive), with electronic ignition and electronic flue gas monitoring, for low temperature heating and DHW production in low temperature heating systems up to 85 °C and 3 bar permissible operating pressure according to EN 12828.</p> <p>High quality heat exchanger made from robust aluminium:silicon alloy.</p> <p>Oil fired condensing boiler and stratification cylinder fully assembled, with high grade powder coating, packed on a pallet.</p> <p><b>Control unit</b></p> <p><b>Standard control unit</b> fully wired and integrated in the boiler; ready for combination with weather-compensated temperature controllers.</p> <p><b>Control accessories</b></p> <p><b>Programming module BM</b> Weather-compensated thermostat with time programs for central heating and DHW. Heating water temperature weather compensated, incl. outdoor temperature sensor. Maybe extended with mixer module MM (up to 7 mixer circuits).</p> <p><b>Mixer module MM</b> Extension module for regulating one mixer circuit; heating water temperature and flow temperature weather compensated, incl. flow sensor.</p> <p><b>Solar module SM1</b> Extension module for regulating one solar circuit. Temperature differential controller for one heat consumer, incl. collector sensor and cylinder sensor, each with sensor well.</p> <p><b>Solar module SM2</b> Extension module for regulating one solar heating system with up to two cylinders and two collector arrays. Easy configuration of the controller through selection of pre-defined system options, incl. collector sensor and cylinder sensor, each with sensor well.</p> <p><b>Cascade module KM</b> Extension module for regulating systems with low loss header or cascades with up to 4 oil fired condensing boilers.</p> <p><b>Radio clock module with outside temperature sensor</b></p> <p><b>Radio clock module</b></p> <p><b>Wireless outside temperature sensor</b> (only in conjunction with receiver for wireless outside temperature sensor, part no. 27 44 209)</p> <p><b>Wireless receiver for wireless outside temperature sensor</b></p> <p><b>WRS - remote service system</b></p> <p><b>Telecontrol contact</b> Two channels with language control</p> <p><b>Balanced flue accessories</b></p> <p><b>Concentric balanced flue system</b></p> <p><b>External wall system</b></p> <p><b>Flue gas system connection set for flues in a duct</b></p> <p><b>Accessories</b></p> <p><b>COB connection set</b>, adjacent to the wall</p> <p><b>COB connection set with CS</b>, adjacent to the wall</p> <p><b>COB connection set for cylinders up to SEM-1-750 and SE-2-750</b>, adjacent to the wall</p> <p><b>CS accessory set for cold water</b></p> <p><b>CS DHW circulation pump accessory set</b></p> <p><b>Pipe assembly</b></p> <p><b>Safety assembly 1"</b></p> <p><b>Wall mounting set for pipe assembly</b></p> <p><b>Condensate lifting system</b>, fully wired with plug, can be fitted in the boiler</p> <p><b>Neutralising system</b>, can be fitted in the boiler</p>		

Everything from one source: from the system professional for heating, air conditioning, ventilation and solar technology



*The competence brand for energy saving systems*

The comprehensive equipment range from system supplier Wolf offers the ideal solution for commercial and industrial buildings, for new build and for modernisation projects alike. The range of Wolf control units fulfils every need where heating convenience is concerned. The products are easy to operate, energy-efficient and reliable. Photovoltaic and solar heating systems can be quickly integrated into existing systems. All Wolf products can be easily and rapidly commissioned and maintained.

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The competence brand for energy saving systems



Part no. 48 00 597

06/08 Subject to technical modifications