Energy saving and environmental protection included

Technical documentation

Oil fired condensing boilers

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

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

Made in Germany
WOLF
Qualität · Sicherheit · Zukunft

Oil fired condensing boiler COB

for central heating; can be combined with a freestanding cylinder, e.g. SEM-1 / SEM-2

Oil fired condensing boiler COB-CS

for central heating; with enamelled steel stratification cylinder

The benefits of the Wolf oil fired condensing boilers:

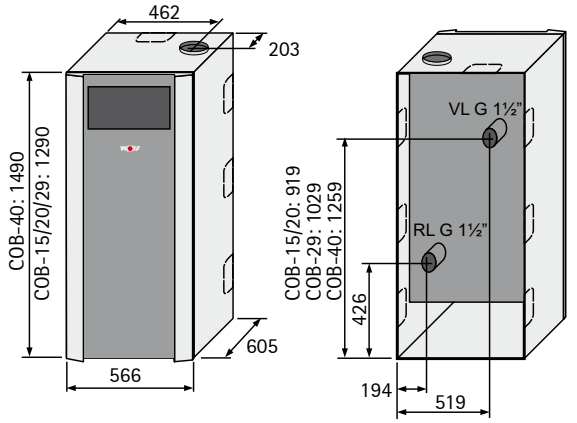
- Extremely clean and efficient combustion with complete condensation of the flue gases and high standard efficiency up to 105% (Hi) / 99% (Hs) for the best possible energy utilisation
- Low power demand
- Suitable for low sulphur and standard fuel oil EL
- Two-stage blue flame burner for open and balanced 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:

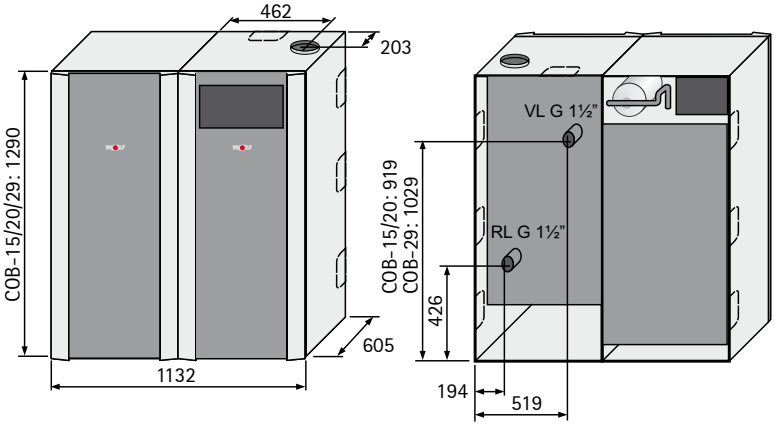
- Convenient DHW heating, cylinder capacity 160 l; comparable with a 200-260 l cylinder
- "DHW turbo" with a new routing and distribution system for hot and cold water inside the stratification cylinder ensure a calm, radial water distribution for excellent DHW performance (patented)
- Hot water always 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-15 / COB-20 / COB-29 / COB-40



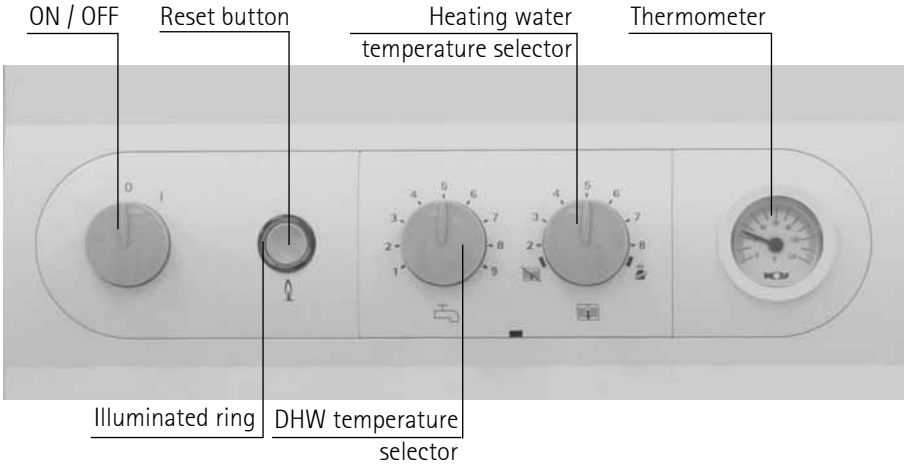
COB-15/CS / COB-20/CS / COB-29/CS



Oil fired condensing boiler		COB-15 COB-15/CS	COB-20 COB-20/CS	COB-29 COB-29/CS	COB-40
Rated output at 80/60 °C, stage 1/2	kW	9,0 / 14,4	13,1 / 19,0	18,5 / 28,2	25,3 / 38,0
Rated output at 50/30 °C, stage 1/2	kW	9,5 / 15,1	13,9 / 20,0	19,6 / 29,6	26,8 / 40,0
Rated load, stage 1/2	kW	9,2 / 14,7	13,5 / 19,6	19,0 / 29,0	26,0 / 38,8
Oil throughput, stage 1/2	kg/h	0,86 / 1,38	1,15 / 1,66	1,60 / 2,45	2,44 / 3,64
Rated capacity CS (equivalent)	litres	160 (200)	160 (240)	160 (260)	-
Constant cylinder output CS	kW / litres/h	15 / 370	20 / 490	29 / 710	-
Performance factor CS	NL60	3,5	4,5	5,0	-
DHW output CS	litres/10min	250	280	300	-
Standby input CS	kWh/24h	1,47	1,47	1,47	-
Max. permissible cold water supply pressure CS	bar	10	10	10	-
Minimum anode power, protective magnesium anode	mA	> 0,3	> 0,3	> 0,3	-
Outside diameter, heating flow	G	1½"	1½"	1½"	1½"
Outside diameter, heating return	G	1½"	1½"	1½"	1½"
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"	3/4"	-
DHW connection	G	3/4"	3/4"	3/4"	-
DHW circulation connection	G	3/4"	3/4"	3/4"	-
Boiler weight	kg	92	92	99	122
Cylinder weight	kg	76	76	76	-
Balanced flue connection	mm	80/125	80/125	80/125	110/160
Balanced flue system	Typ	B23, B33, C33(x), C43(x), C53(x), C63(x), C83(x), C93(x)			
Fuel oil to DIN 51603-1/6		Fuel oil EL standard, low sulphur fuel oil EL or bio-oil B10			
Nozzle		Danfoss 0,30 / 80° S	Danfoss 0,40 / 80° S LE	Danfoss 0,55 / 80° S LE	Danfoss 0,65 / 80° S LE
Fuel oil filter		Siku max. 40 µm			
Pump pressure, stage 1/2	bar	5,0 ± 0,5/12,0 ± 1,0	8,5 ± 1,0/16,8 ± 2,5	8,5 ± 1,0/16,8 ± 2,5	9,8 ± 1,0/18,0 ± 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	3,6 / 12	6 / 21	17 / 55	54 / 205
Max. permissible boiler pressure	bar	3	3	3	3
Heat exchanger water content	litres	7,5	7,5	9,0	11,5
Standard efficiency at 40/30 °C (H_i / H_s)	%	105 / 99	105 / 99	105 / 99	104 / 98
Standard efficiency at 75/60 °C (H_i / H_s)	%	100 / 95	101 / 96	101 / 96	98 / 93
Efficiency at rated load at 80/60 °C (H_i / H_s)	%	97 / 92	97 / 92	97 / 92	98 / 93
Efficiency at 30% partial load and TR=30 °C (H_i / H_s)	%	102 / 97	103 / 97	103 / 97	103 / 97
Boiler standby loss qB at 70 °C (EnEv)	%	0,75	0,75	0,55	0,45
Flue gas mass flow, stage 2	g/s	6,45	9,06	13,33	17,51
Flue gas temperature 50/30 - 80/60 °C, stage 2	°C	40 - 63	49 - 69	55 - 76	56 - 83
Available fan draught, stage 2	Pa	65	65	105	150
Flue gas mass flow, stage 1	g/s	4,04	6,28	9,05	10,91
Flue gas temperature 50/30 - 80/60 °C, stage 1	°C	35 - 55	40 - 61	40 - 64	43 - 68
Available fan draught, stage 1	Pa	32	45	55	72
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	86/128	99/139	129/178	126/205
Protection		IP20	IP20	IP20	IP20
Condensate volume at 40/30 °C	litres/h	1,2	1,6	2,2	2,8
Condensate pH value		approx. 3	approx. 3	approx. 3	approx. 3
CE ID		CE-0085BS0326			

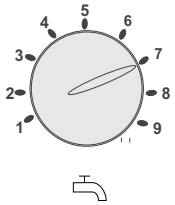
* Nur bei Geräten mit Speicher CS

Standard controls

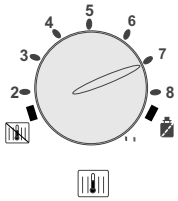


Illuminated indicator ring as status display

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
For oil fired condensing boilers in combination with a cylinder 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.

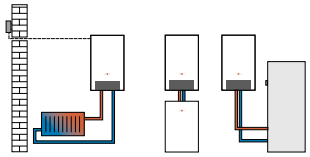
Thermometer
The heating water temperature is displayed.

Control accessories

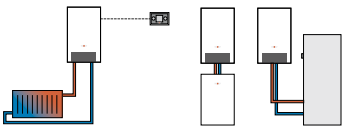
Standard control unit; part of the standard delivery of the oil fired condensing boiler

Two-wire eBUS cable

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

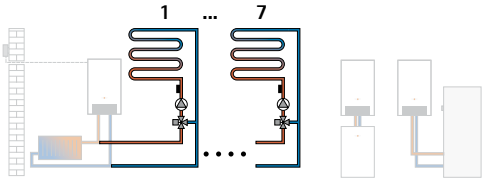


BM programming module with wall mounting base (accessory) as remote control



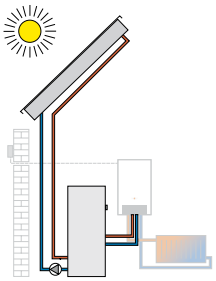
- Time programs for DHW and central heating
- LCD with background illumination
- Easy plain prompts guide through the menus
- Control by rotary selector with key function
- Four function keys for frequently used functions (heating, DHW, setback, help)
- Installation either inside the boiler control unit 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)

Mixer module MM



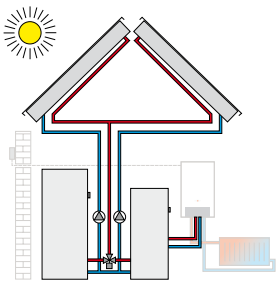
- Extension module for regulating one mixer circuit
- Weather-compensated flow temperature control
- Easy configuration of the controller through selection of pre-defined system options
- BM programming module to clip into boiler, or extendable with wall mounting base as remote control
- Rast-5 connection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



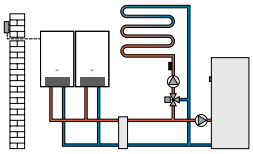
- Functions identical to SM1, additional control for a second collector field and one further cylinder possible
- Easy configuration of the controller through selection of pre-defined system options

Control accessories

Two-wire eBUS cable

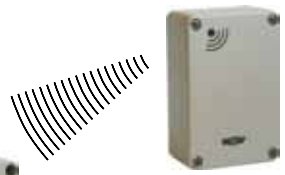
Cascade module KM

- 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



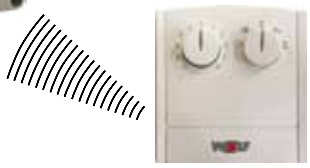
Radio clock (DCF 77 signal) with outside temperature sensor
for automatic time adjustment.

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)



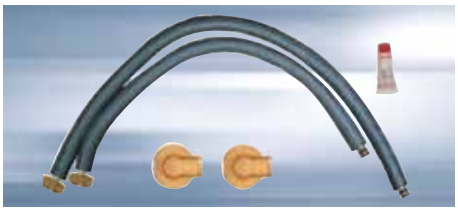
Wireless remote control
(only in conjunction with a receiver for external wireless sensor and remote control).
Max. one wireless remote control per mixer circuit.

ISM1 – RS232 interface module (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 software "WRS-Soft".

ISM2 – USB/eBUS interface module
for direct access via PC to the control unit and for transferring fault messages as SMS, comprising: Interface module ISM2 and software "WRS-Soft".

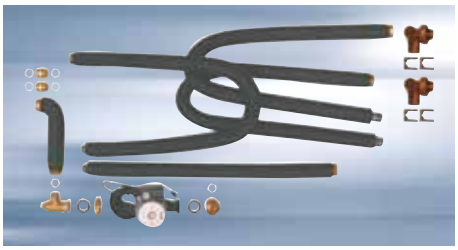
Installation accessories

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 ¾", length 800 mm
1 silicon grease tube
1 trimming set ¾"



COB connection set, adjacent to the wall, for cylinders SE-2 up to 750 l, SEM-1 up to 750 l or SEM-2 up to 400 l
comprising:
2 cross pieces, each with two connections 1300 mm
1 corrugated stainless steel pipe 1", length 800 mm
1 silicon grease tube
1 pump UPS 25-60
2 double nipples G1" AG - G1"
1 elbow with air vent
3 corrugated stainless steel pipes 1", length
4 brackets
1 pipe bend
6 flat gaskets 1"
2 flat gaskets 1½" EPDM
1 Adaptor fittings G 1½" (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 ¾"
1 trimming set ¾"

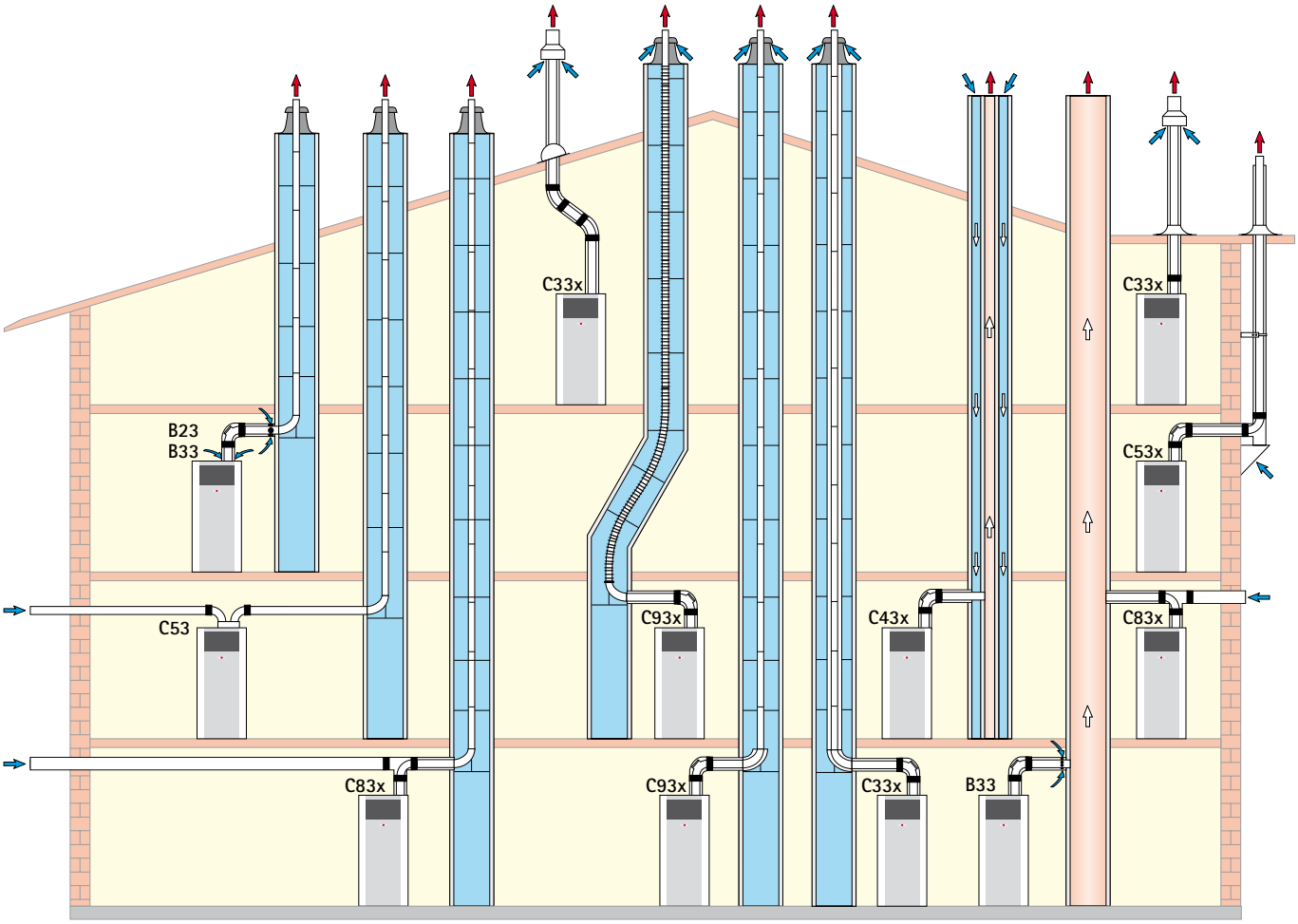
CS DHW circulation pump accessory set
comprising:
1 DHW circulation pump
1 corrugated stainless steel pipe ¾"
1 trimming set ¾"

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



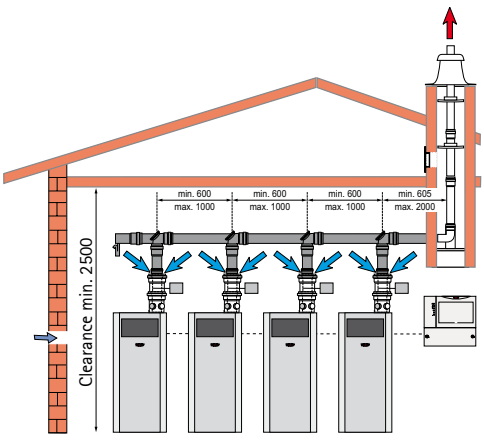
Types of connection

Boiler Type	Type [1), 2)]	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-15/20/29/40	B23, B33, C33x, C43x, C53, C53x, C63x, C83x, C93x	yes	yes	B33, C53, C83x	C43x	C33x, C53x, C93x	C63x	B23, C53x, C83x

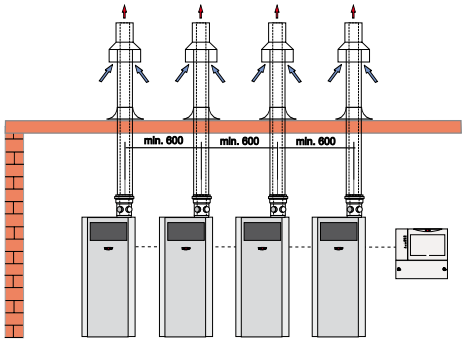
[1)] Marking "X" indicates that all flue pipe components are surrounded by combustion air and fulfil increased tightness requirements.

[2)] 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)



Cascade operation with manifold flue

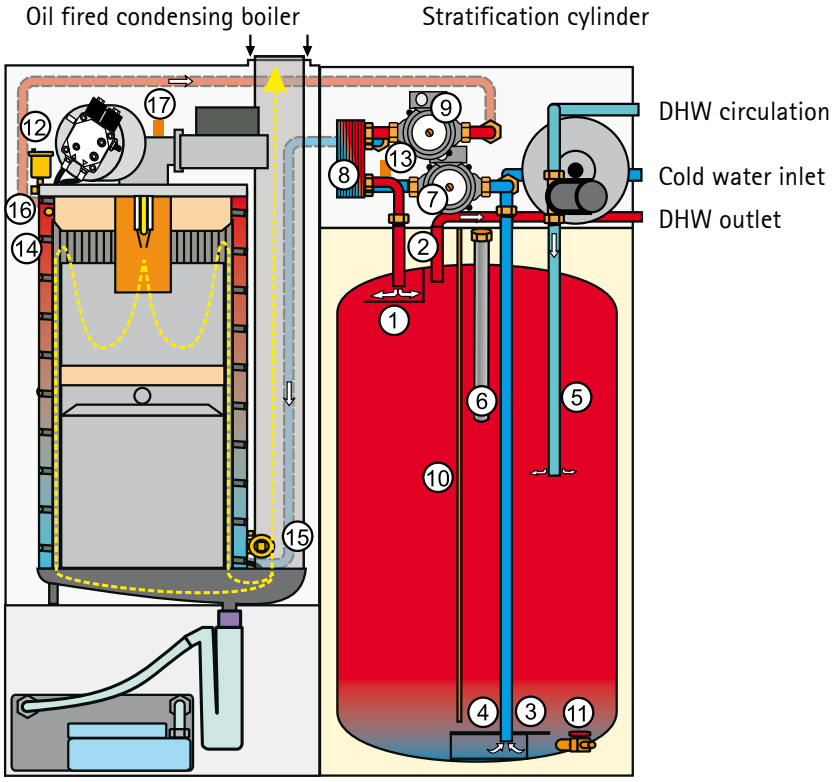


Cascade operation with separate, concentric, vertical balanced flue type C33x

Central heating - DHW heating options

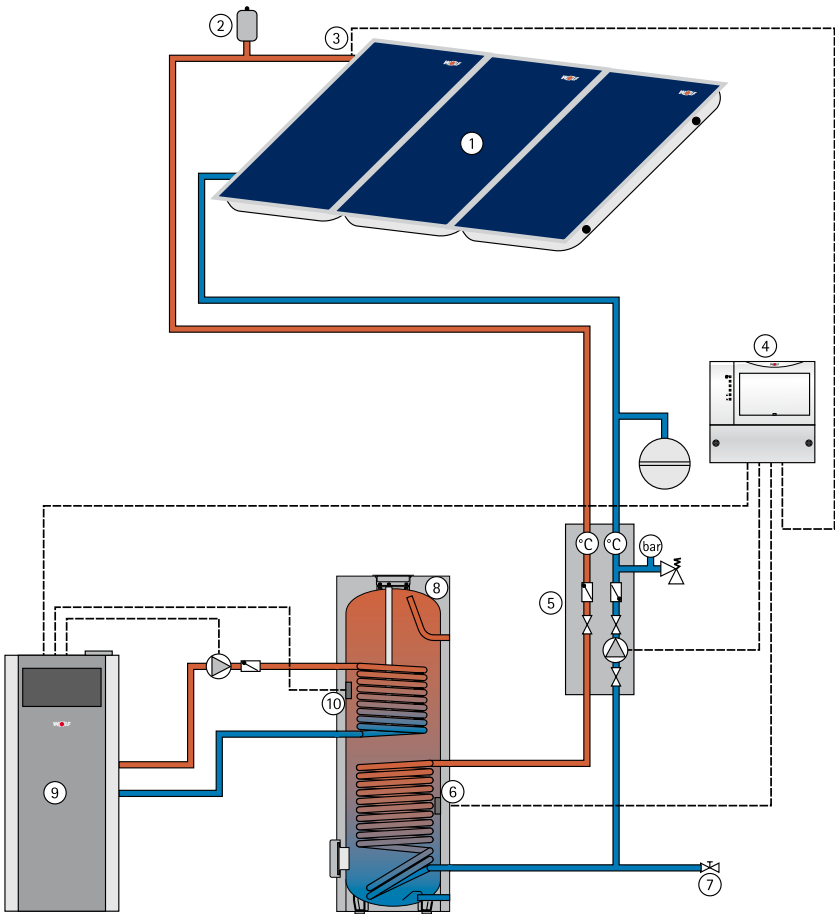
COB-CS oil fired condensing boiler with stratification cylinder

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 / SEM-2 and one collector field

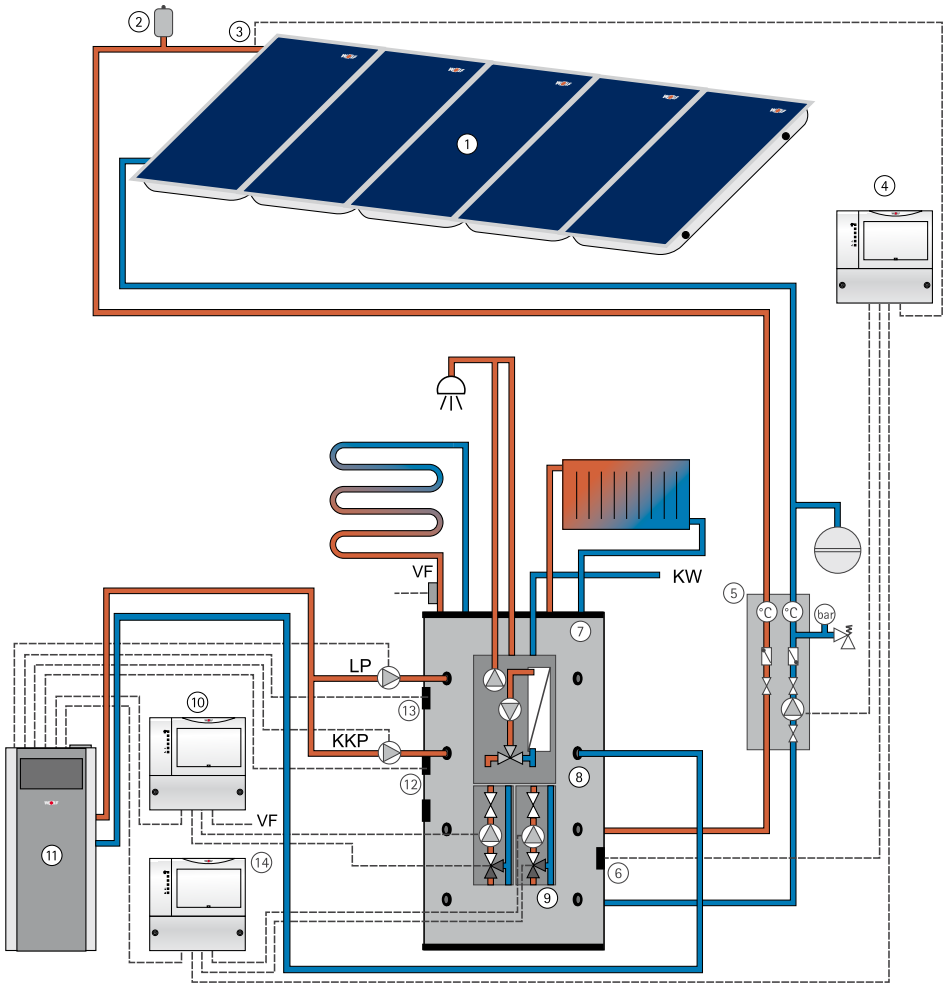
1 Collector array
2 Air vent trap
3 Collector sensor
4 Solar module SM1
5 Pump/fitting assembly 10
6 Solar control unit cylinder sensor
7 Fill and drain valve
8 SEM-1 / SEM-2 solar cylinder
9 Condensing boiler COB with BM programming module
10 Cylinder sensor, heating water



Central heating - DHW heating options

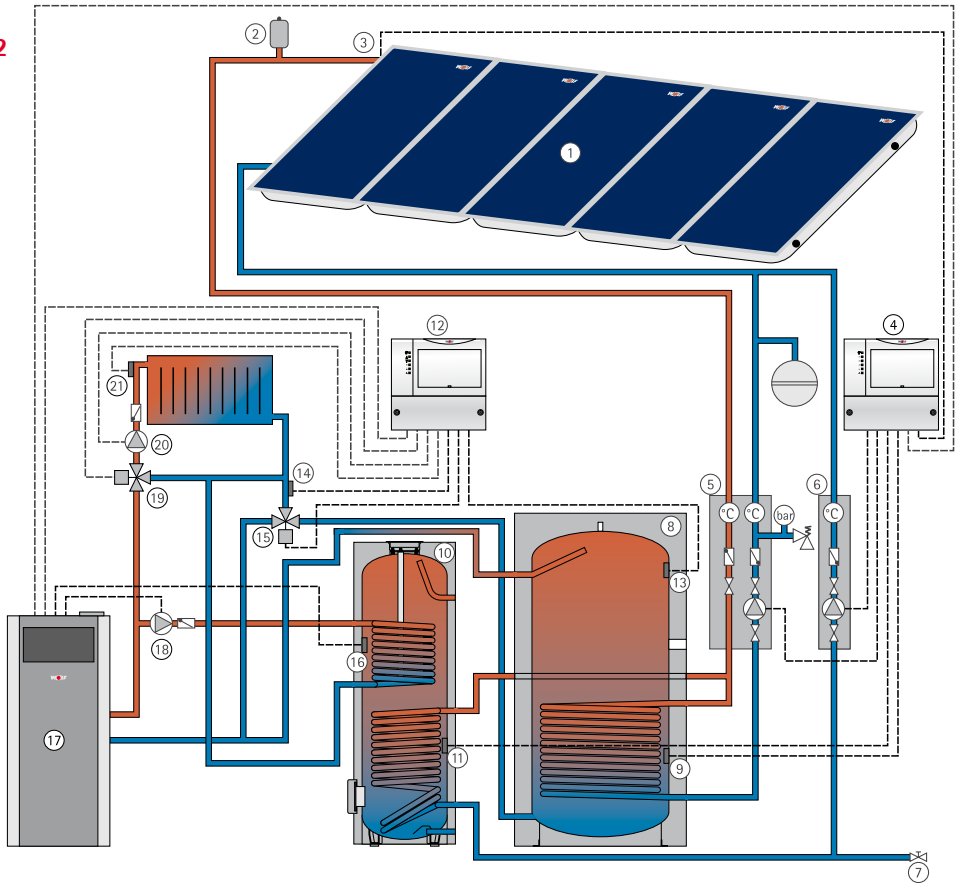
Solar DHW heating and central heating backup with stratification cylinder BSP

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 / SEM-2 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 SEM-1 / SEM-2
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

Oil fired condensing boiler COB / COB-CS ComfortLine

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.

High quality heat exchanger made from robust aluminium:silicon alloy.

Oil fired condensing boiler and stratification cylinder fully assembled, with high grade powder coating, packed on a pallet.

Control unit

Standard control unit fully wired and integrated in the boiler; ready for combination with weather-compensated temperature controllers.

Control accessories

Programming module BM
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).

Mixer module MM
Extension module for regulating one mixer circuit; heating water temperature and flow temperature weather compensated, incl. flow sensor.

Solar module SM1
Extension module for regulating one solar circuit.
Temperature differential controller for one heat consumer, incl. collector sensor and cylinder sensor, each with sensor well.

Solar module SM2
Extension module for regulating one solar heating system with up to two cylinders and two collector field. Easy configuration of the controller through selection of pre-defined system options, incl. collector sensor and cylinder sensor, each with sensor well.

Cascade module KM
Extension module for regulating systems with low loss header or cascades with up to 4 oil fired condensing boilers.

Radio clock module with outside temperature sensor

Radio clock module

Wireless outside temperature sensor
(only in conjunction with receiver for wireless outside temperature sensor, part no. 27 44 209)

Wireless receiver for wireless outside temperature sensor

ISM1 - RS232 interface module (Remote service system)

ISM2 - USB/eBUS interface module

Telecontrol contact
Two channels with language control

Balanced flue accessories

Concentric balanced flue system

External wall system

Flue gas system connection set for flues in a duct

Accessories

COB connection set, adjacent to the wall

COB connection set with CS, adjacent to the wall

COB connection set for cylinders SE-2 up to 750 l, SEM-1 up to 750 l or SEM-2 up to 400 l, adjacent to the wall

CS accessory set for cold water

CS DHW circulation pump accessory set

Pipe assembly

Safety assembly 1"

Wall mounting set for pipe assembly

Condensate lifting system, fully wired with plug, can be fitted in the boiler

Neutralising system, can be fitted in the boiler

Energy saving and environmental protection included

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.

Wolf GmbH, PO Box 1380, D-84048 Mainburg, Tel.: +49 87 51 / 74-0, Fax: +49 87 51 / 74-1600, Internet: www.wolf-heiztechnik.de

The competence brand for energy saving systems

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