

## Technical guide and installation instructions

# COB / COB-TS oil condensing boiler



COB for central heating •

COB-TS for central heating with stratification cylinder



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**Authorised personnel should read these instructions before any installation, commissioning or service work. Comply with the specifications in this document. Failure to observe these installation instructions voids any warranty claim against WOLF.**

- Applicability of these instructions** These installation instructions apply to the COB/TS oil condensing boiler
- Other applicable documents** COB/TS user operating instructions COB/TS service instructions System and operator's log The instructions for all accessory modules and other accessories also apply where relevant.
- Safekeeping of these documents** The system user or operator should ensure the safekeeping of all instruction manuals and documents.
- ▶ Pass on these installation instructions as well as all other applicable manuals to the system operator or user.
- Symbols** The following warning symbols are used in these instructions. These relate to personal safety and operational reliability.
-  Instructions that must be followed precisely in order to prevent risk and injury to persons.
  -  Instructions that must be followed precisely in order to prevent risk and injury to persons from live electrical components.
  - Note Indicates technical instructions that must be observed to prevent damage to the boiler and malfunctions.

### General information



For

- Installation,
- Commissioning and
- Maintenance



of the boiler: this may be performed by qualified and trained personnel only. In accordance with VDE 0105 Part 1, work on electrical components (e.g. control unit) may only be carried out by qualified electricians. VDE/ÖVE regulations [Germany/Austria] and those of your local power supply utility company are applicable to electrical installation work. Only operate the boiler within its output range, which is stated in the technical documentation supplied by WOLF. Appropriate use of the boiler refers to the exclusive use for hot water heating systems in accordance with EN 12828. Never remove, bypass or otherwise disable any safety or monitoring equipment. The boiler must only be operated if it is in perfect working order. Any faults or damage which impact or might impact safety must be remedied immediately by a qualified contractor. Only replace faulty components and equipment with original WOLF spare parts.

### Danger from "live" electrical components



Never touch electrical components or contacts when the ON/OFF switch is in the ON position. There is a danger of electrocution, resulting in a risk to health or death. The main terminals are 'live', even when the ON/OFF switch is in the OFF position.

Before removing the casing

- Isolate the system from the power supply (e.g. by removing the separate mains fuse or by means of a mains electrical isolator or heating emergency stop switch) and check to ensure that there is no voltage.
- Safeguard the system against reconnection.

### Risk of asphyxiation/poisoning



Devices with insufficient combustion air supply or flue gas removal may cause flue gas to leak into the installation room. This results in a risk of asphyxiation, or severe to life-threatening poisoning.

- Switch OFF the appliance if you smell flue gas
- Open windows and doors
- Notify an approved contractor

### Risk from water-polluting materials



Oil condensing boilers include oil-bearing parts. This is a risk to health from drinking water contaminated with oil.

- Lock the oil supply to oil-bearing parts before starting any work.
- Perform a seal inspection on oil-bearing parts after work has finished

### Risk of scalding



Boilers may contain hot water.

Hot water can cause severe scalding.

Before working on parts which are in contact with water, allow the appliance to cool to below 40 °C, shut off all valves and, if necessary, drain the appliance.

### Risk of burns



Boiler components may be extremely hot.

Hot components can cause burns.

Before working on the opened up appliance, allow it to cool below 40 °C or wear suitable gloves.

### Danger from pressurised water



Boilers are subject to high water pressure.

Water pressure can cause severe injuries.

Before working on parts which are in contact with water, allow the appliance to cool to below 40 °C, shut off all valves and, if necessary, drain the appliance.

Note: Sensors can be in contact with water and therefore exposed to pressure.

### Instructing the system user

- Instruct the system user to take out an inspection and maintenance contract with an approved contractor.
- Inform the system user that the annual inspection and maintenance may only be performed by an approved contractor.
- Inform the system user that repair work may only be performed by an approved contractor.
- Inform the system user that only original spare parts may be used.
- Inform the system user that no technical changes may be made to the boiler or control unit.
- Inform the system user that they are responsible for the safety, environmental compatibility and energy quality of the heating system (German Immission Control Act/Energy Saving Ordinance) [Germany].
- Inform the system user that these instructions and the other applicable documents must be kept in a safe place.
- Instruct the system user how to operate the heating system.

### Recycling and disposal

Old equipment may only be disconnected from the gas and electricity supply by a qualified contractor.

- Always dispose of materials according to environmental, recycling and waste management standards.
- Old equipment, worn parts, defective components and liquids and oils which are a hazard to the environment must be disposed of or recycled according to the applicable waste disposal regulations in an environmentally compatible manner. **They must not be disposed of as household waste.**
- Dispose of packaging made of cardboard, recyclable plastics and synthetic filler materials in an environmentally compatible manner through appropriate recycling systems or a recycling centre.
- Please observe the applicable national and local regulations.

<b>Intended use</b>	<b>COB/COB-TS oil condensing boiler</b> Two-stage oil condensing boiler with electronic ignition and electronic flue gas monitoring, for low temperature heating and DHW heating in heating systems with flow temperatures of up to 90 °C and a permissible operating pressure of 3 bar.
<b>Declaration of Conformity</b>	This product complies with European regulations and national requirements (see the Declaration of Conformity chapter)
<b>Local regulations</b>	<b>The local regulations must be complied with during installation and operation of the heating system regarding:</b> <ul style="list-style-type: none"><li>• Siting conditions</li><li>• Ventilation and extract air facilities and connection to a chimney</li><li>• Electrical connection to the power supply</li><li>• Technical regulations for oil storage installations and oil devices</li><li>• Regulations and standards regarding the safety equipment of the water heating system</li><li>• DHW installation</li></ul>
<b>General regulations</b>	<b>The following general regulations, rules and guidelines must be observed for installation in particular:</b> <ul style="list-style-type: none"><li>• EN 806 Drinking water supply systems</li><li>• EN 1717 Protection against pollution of potable water in water installations</li><li>• EN 12831 Heating systems in buildings – Method for calculation of the design heat load</li><li>• EN 12828 Heating systems in buildings - Design of water-based heating systems</li><li>• EN 13384 Chimneys – Thermal and fluid dynamic calculation methods</li><li>• EN 50156-1 (VDE 0116 Part 1) Electrical equipment in combustion systems</li><li>• VDE 0470/EN 60529 Degrees of protection provided by enclosures (IP rating)</li><li>• VDI 2035 Prevention of damage in hot water heating systems<ul style="list-style-type: none"><li>- Scale formation (Sheet 1)</li><li>- Corrosion by water (Sheet 2)</li><li>- Corrosion by flue gases (Sheet 3)</li></ul></li></ul> <b>The following also apply to installation and operation in Germany:</b> <ul style="list-style-type: none"><li>• Technical regulations for oil installations IWO-TRÖL in the currently applicable version</li><li>• DIN 1988 Drinking water supply systems</li><li>• DIN 18160 Flue systems</li><li>• DWA-A 251 Condensate from condensing boilers</li><li>• ATV-DVWK-M115-3 Indirect discharge of non-domestic waste water – Part 3: Indirect discharge monitoring in practice</li><li>• VDE 0100 Regulations for the erection of power installations with rated voltages below 1000 V.</li><li>• VDE 0105 Operation of high voltage systems, general stipulations</li><li>• KÜO German Federal Sweeping and Inspection Act</li><li>• Energy Savings Act (EnEG) and related directives<ul style="list-style-type: none"><li>EnEV Energy Saving Ordinance (currently applicable version)</li></ul></li></ul>

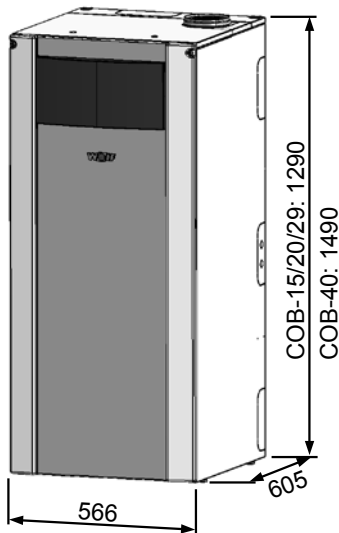
**Note** WOLF oil condensing boilers must only be installed by a qualified heating contractor. This heating contractor will also be responsible for the proper installation and commissioning of the heating system. The DVGW Code of Practice G676, boiler room guidelines or Building Regulations relating to the construction and installation of central boiler rooms and fuel storage facilities apply.

**The following apply to installation and operation in Austria in particular:**

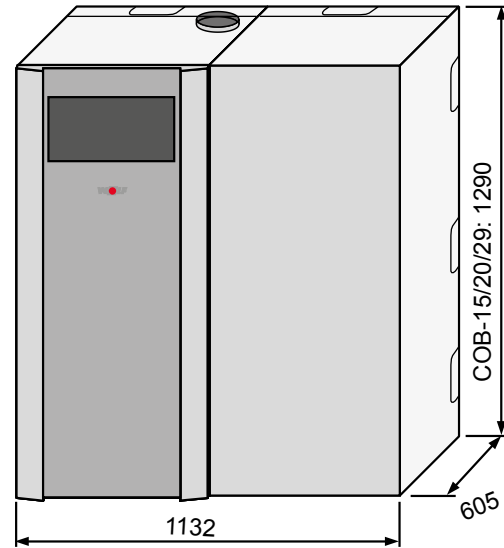
- ÖVE regulations
- Provisions of the ÖVGW and the corresponding Austrian standards
- On site regulations from building and industry regulatory agencies (mainly covered by the emission test switch)
- Provisions of the regionally applicable Building Regulations
- The minimum heating water requirements in accordance with ÖNORM H5195-1 must be observed

**The following apply to installation and operation in Switzerland in particular:**

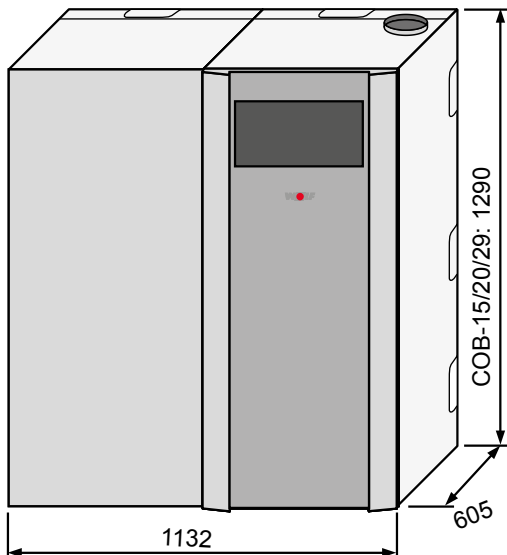
- SVGW regulations
- VKF regulations
- BUWAL and local regulations must be observed.



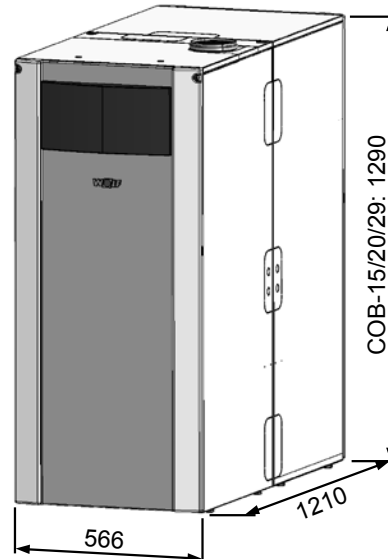
Oil condensing boiler COB-15/20/29/40  
for heating with connection option for DHW cylinder e.g. SE-2,  
SEM series, BSP



Oil condensing boiler COB-15/20/29  
with TS stratification cylinder,  
right, floorstanding



Oil condensing boiler COB-15/20/29  
with TS stratification cylinder,  
left, floorstanding



Oil condensing boiler COB-15/20/29  
with TS stratification cylinder,  
rear, floorstanding

### COB standard delivery

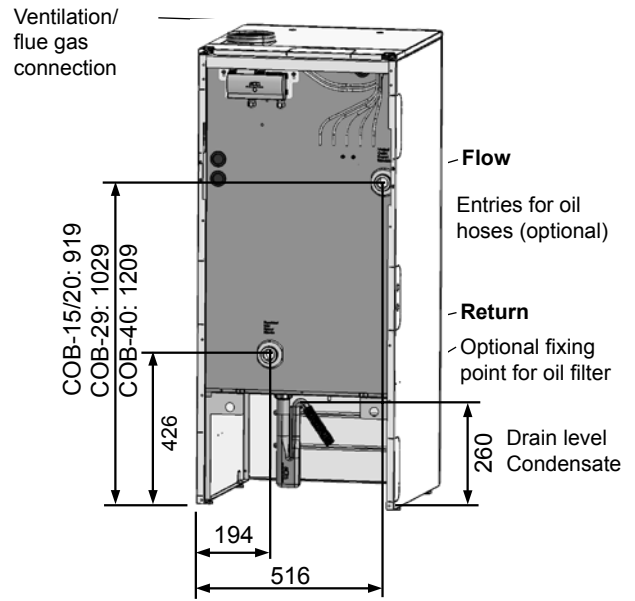
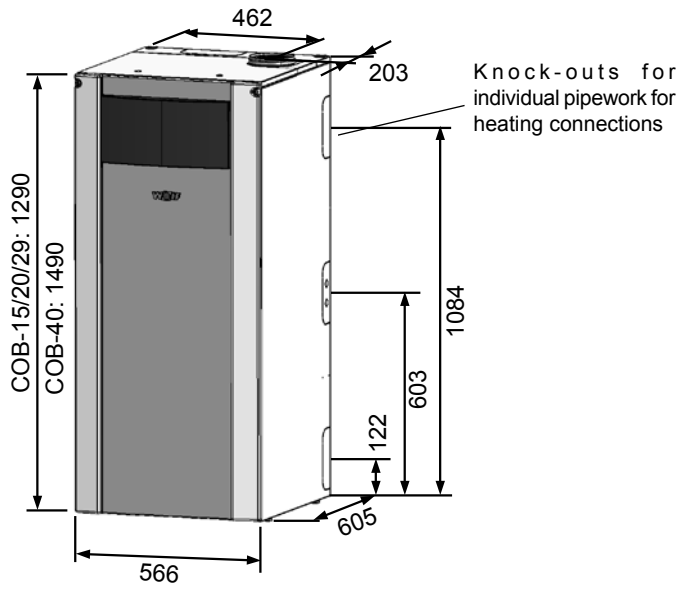
- Oil condensing boilers
- Connection adaptor for flue gas with test nipple
- Trap with hose
- Stainless steel cleaning brush
- Maintenance tool with setting gauge
- Protective cap for maintenance
- COB/TS installation instructions
- COB/TS operating instructions
- COB/TS maintenance instructions
- Oil filter insert 40 µm

### COB-TS standard delivery (not for COB-40)

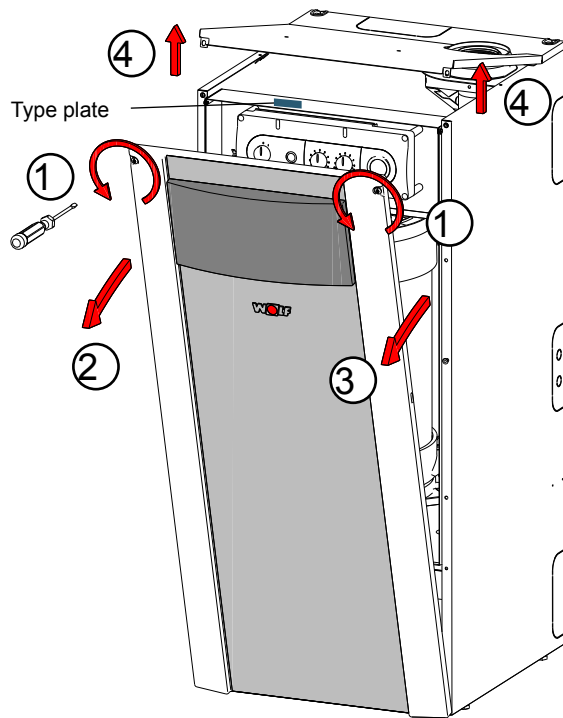
- Oil condensing boilers
- Stratification cylinder
- Connection adaptor for flue gas with test nipple
- Trap with hose
- Stainless steel cleaning brush
- Maintenance tool with setting gauge
- Protective cap for maintenance
- COB/TS installation instructions
- COB/TS operating instructions
- COB/TS maintenance instructions
- Oil filter insert 40 µm

The device is fully assembled and encased. The control unit is fully wired.

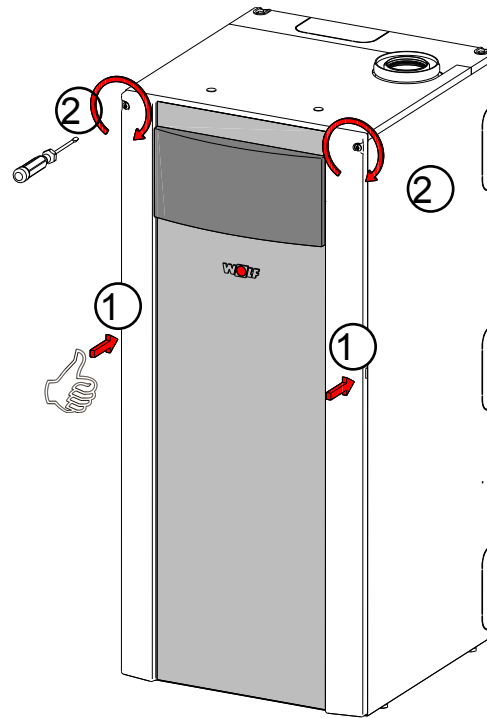




### Opening the casing



### Closing the casing



<b>Oil condensing boilers</b>		<b>COB-15</b>	<b>COB-15/TS</b>	<b>COB-20</b>	<b>COB-20/TS</b>
Rated heating output at 80/60 °C, stage 1/2	kW	9,0 / 14,4	9,0 / 14,4	13,1 / 19,0	13,1 / 19,0
Rated heating output at 50/30 °C, stage 1/2	kW	9,5 / 15,1	9,5 / 15,1	13,9 / 20,0	13,9 / 20,0
Rated load, stage 1/2	kW	9,2 / 14,7	9,2 / 14,7	13,5 / 19,6	13,5 / 19,6
Oil throughput, stage 1/2	kg/h	0,86 / 1,38	0,86 / 1,38	1,15 / 1,66	1,15 / 1,66
Rated capacity TS (equivalent)	l	-	160 (200)	-	160 (240)
TS continuous cylinder output	kW/Ltr/h	-	15 / 370	-	20 / 490
TS output factor	NL60	-	3.5	-	4,5
DHW output TS	l/10 min	-	250	-	280
Standby input TS	kWh/24 h	-	1,47	-	1,47
Max. permissible cold water supply pressure TS*	bar	-	10	-	10
Minimum anode current, protective magnesium anode	mA	-	> 0,3	-	> 0,3
External diameter, heating flow	G	1½"	1½"	1½"	1½"
External diameter, heating return	G	1½"	1½"	1½"	1½"
Drain connection		1"	1"	1"	1"
Oil connection, flow/return hoses	G	3/8"	3/8"	3/8"	3/8"
Cold water supply	G	-	3/4"	-	3/4"
DHW connection	G	-	3/4"	-	3/4"
DHW circulation connection	G	-	3/4"	-	3/4"
Height	mm	1290	1290	1290	1290
Width	mm	566	1132	566	1132
Depth	mm	605	605	605	605
Boiler weight	kg	92	92	92	92
Cylinder weight	kg	-	76	-	76
Balanced flue connection	mm	80/125	80/125	80/125	80/125
Air/flue gas routing	Type	B23, B33, C33(x), C43(x), C53(x), C63(x), C83(x), C93(x)			
Fuel oil to DIN 51603-1/6		Fuel oil EL, low sulphur, bio-oil B10 or fuel oil EL standard			
Nozzle *		Danfoss 0.30/80° S		Danfoss 0.40 / 80° S LE	
Fuel oil filter		Siku max. 40 µm			
CO <sub>2</sub> setting stage 1 and stage 2	%	13,5 ± 0,3	13,5 ± 0,3	13,5 ± 0,3	13,5 ± 0,3
Pump pressure stage 1	bar	5,0 ± 1,0	5,0 ± 1,0	8,5±1,0	8,5 ± 1,0
Pump pressure stage 2	bar	12,0 ± 2,5	12,0 ± 2,5	16,8 ± 2,5	16,8 ± 2,5
Maximum negative pressure in oil line	bar	-0,3	-0,3	-0,3	-0,3
Flow temperature, factory setting	°C	80	80	80	80
Max. Flow temperature	°C	90	90	90	90
Heating water pressure drop at Δ T=20 K	mbar	3,6	3,6	6	6
Heating water pressure drop at Δ T=10 K	mbar	12	12	21	21
Max. permissible boiler pressure	bar	3	3	3	3
Heating surface, heating water heat exchanger	m <sup>2</sup>	2,55	2,55	2,55	2,55
Water capacity of the heat exchanger	litres	7.5	7.5	7.5	7.5
Standard seasonal efficiency [to DIN] at 40/30 °C (H <sub>i</sub> / H <sub>s</sub> )	%	105 / 99	105 / 99	105 / 99	105 / 99
Standard seasonal efficiency [to DIN] at 75/60 °C (H <sub>i</sub> / H <sub>s</sub> )	%	100 / 95	100 / 95	101 / 96	101 / 96
Efficiency at rated load at 80/60 °C (H <sub>i</sub> / H <sub>s</sub> )	%	97 / 91	97 / 91	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	0.75	0.75
Rated heat input (stage 2):					
Flue gas mass flow rate	g/s	6,45	6,45	9,06	9,06
Flue gas temperature 50/30 - 80/60 °C	°C	40 - 63	40 - 63	49 - 69	49 - 69
Available fan draught	Pa	65	65	65	65
Lowest heat input (stage 1):					
Flue gas mass flow rate	g/s	4,04	4,04	6,28	6,28
Flue gas temperature 50/30 - 80/60 °C	°C	35 - 55	35 - 55	40 - 61	40 - 61
Available fan draught	Pa	32	32	45	45
Electrical connection	V~/Hz	230/50	230/50	230/50	230/50
Integral fuse (medium time lag)	A	5 A	5 A	5 A	5 A
Power consumption, stage 1 / stage 2	W	86/128	86/128	99/139	99/139
IP rating		IP 20	IP 20	IP 20	IP 20
Amount of condensate at 40/30 °C	l/h	1,2	1,2	1,6	1,6
Condensate pH value		around 3	around 3	around 3	around 3
CE designation		CE-0085BS0326			

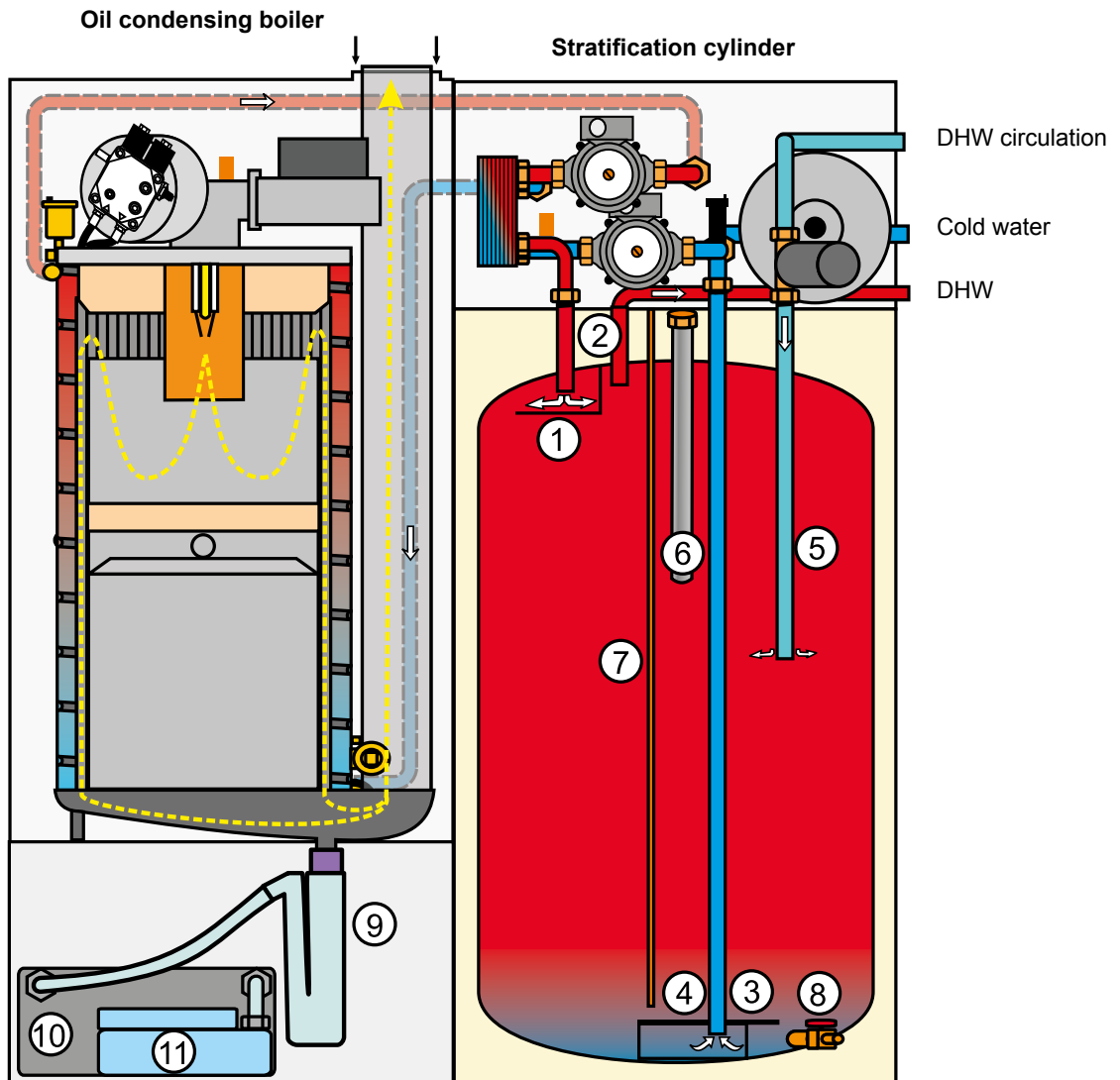
\* this nozzle enables the emission requirements to be met in accordance with the standard and guarantees reliable operation.  
No other nozzles are permissible!

<b>Oil condensing boilers</b>		<b>COB-29</b>	<b>COB-29/TS</b>	<b>COB-40</b>
Rated heating output at 80/60 °C, stage 1/2	kW	18,5 / 28,2	18,5 / 28,2	25,3 / 38,0
Rated heating output at 50/30 °C, stage 1/2	kW	19,6 / 29,6	19,6 / 29,6	26,8 / 40,0
Rated load, stage 1/2	kW	19,0 / 29,0	19,0 / 29,0	26,0 / 38,8
Oil throughput, stage 1/2	kg/h	1,60 / 2,45	1,60 / 2,45	2,44 / 3,64
Rated capacity TS (equivalent)	l	-	160 (260)	-
TS continuous cylinder output	kW/Ltr/h	-	29 / 710	-
TS output factor	NL60	-	5.0	-
DHW output TS	l/10 min	-	300	-
Standby input TS	kWh/24 h	-	1,47	-
Max. permissible cold water supply pressure TS*	bar	-	10	-
Minimum anode current, protective magnesium anode	mA	-	> 0,3	-
External diameter, heating flow	G	1½"	1½"	1½"
External diameter, heating return	G	1½"	1½"	1½"
Drain connection		1"	1"	1"
Oil connection, flow/return hoses	G	3/8"	3/8"	3/8"
Cold water supply	G	-	3/4"	-
DHW connection	G	-	3/4"	-
DHW circulation connection	G	-	3/4"	-
Height	mm	1290	1290	1490
Width	mm	566	1132	566
Depth	mm	605	605	605
Boiler weight	kg	99	99	122
Cylinder weight	kg	-	76	-
Balanced flue connection	mm	80/125	80/125	110/160
Air/flue gas routing	Type	B23, B33, C33(x), C43(x), C53(x), C63(x), C83(x), C93(x)		
Fuel oil to DIN 51603-1/6		Fuel oil EL, low sulphur, bio-oil B10 or fuel oil EL standard		
Nozzle *		Danfoss 0.55 / 80° S LE		
Fuel oil filter		Siku max. 40 µm		
CO <sub>2</sub> setting stage 1 and stage 2	%	13,5 ± 0,3	13,5 ± 0,3	13,5 ± 0,3
Pump pressure stage 1	bar	8,5 ± 1,0	8,5 ± 1,0	11,0 ± 1,0
Pump pressure stage 2	bar	16,8 ± 2,5	16,8 ± 2,5	23,5 ± 2,5
Maximum negative pressure in oil line	bar	-0,3	-0,3	-0,3
Flow temperature, factory setting	°C	80	80	80
Max. Flow temperature	°C	90	90	90
Heating water pressure drop at Δ T=20 K	mbar	17	17	54
Heating water pressure drop at Δ T=10 K	mbar	55	55	205
Max. permissible boiler pressure	bar	3	3	3
Heating surface, heating water heat exchanger	m <sup>2</sup>	3,05	3,05	3,85
Water capacity of the heat exchanger	litres	9.0	9.0	11,5
Standard seasonal efficiency [to DIN] at 40/30 °C (H <sub>i</sub> / H <sub>s</sub> )	%	105 / 99	105 / 99	104 / 98
Standard seasonal efficiency [to DIN] at 75/60 °C (H <sub>i</sub> / H <sub>s</sub> )	%	101 / 96	101 / 96	98 / 93
Efficiency at rated load at 80/60 °C (H <sub>i</sub> / H <sub>s</sub> )	%	97 / 91	97 / 91	98 / 92
Efficiency at 30% partial load and TR=30 °C (H <sub>i</sub> / H <sub>s</sub> )	%	103 / 97	103 / 97	103 / 98
Boiler standby loss qB at 70 °C (EnEV)	%	0,55	0,55	0,45
Rated heat input (stage 2):				
Flue gas mass flow rate	g/s	13,33	13,33	17,51
Flue gas temperature 50/30 - 80/60 °C	°C	55 - 76	55 - 76	56 - 83
Available fan draught	Pa	105	105	150
Lowest heat input (stage 1):				
Flue gas mass flow rate	g/s	9,05	9,05	10,91
Flue gas temperature 50/30 - 80/60 °C	°C	40 - 64	40 - 64	43 - 68
Available fan draught	Pa	55	55	72
Electrical connection	V~/Hz	230/50	230/50	230/50
Integral fuse (medium time lag)	A	5 A	5 A	5 A
Power consumption, stage 1 / stage 2	W	129 / 178	129 / 178	126 / 205
IP rating		IP 20	IP 20	IP 20
Amount of condensate at 40/30 °C	l/h	2,2	2,2	2.8
Condensate pH value		around 3	around 3	around 3
CE designation		CE-0085BS0326		

\* this nozzle enables the emission requirements to be met in accordance with the standard and guarantees reliable operation.  
No other nozzles are permissible!

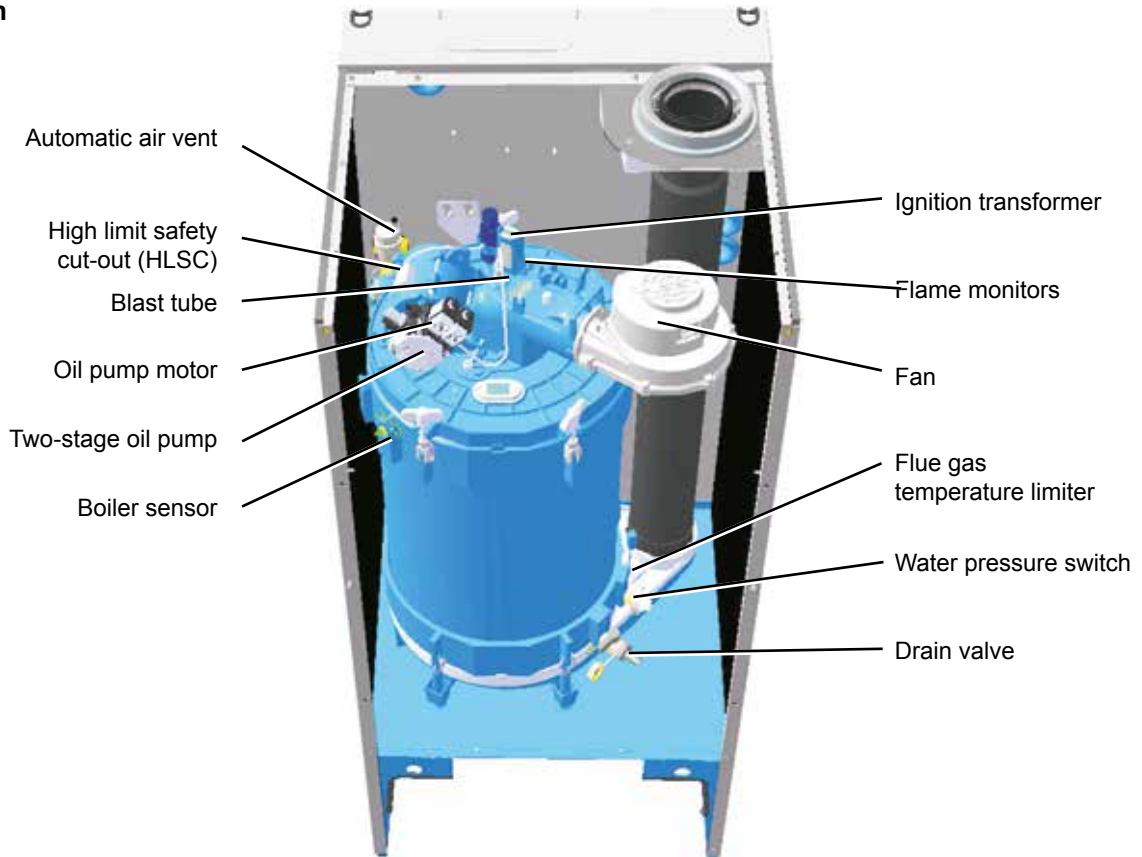
### COB-TS oil condensing boiler with stratification cylinder

- 1 Cylinder heating from above with deflector and divider
- 2 DHW draw-off at the highest point
- 3 Cold water supply with control and distribution appliance
- 4 Cold water draw-off for cylinder heating
- 5 DHW circulation line
- 6 Protective magnesium anode
- 7 Sensor well for cylinder temperature sensor
- 8 Drain (in standard delivery)
- 9 Trap
- 10 Neutralising system (accessory)
- 11 Condensate pump (accessory)

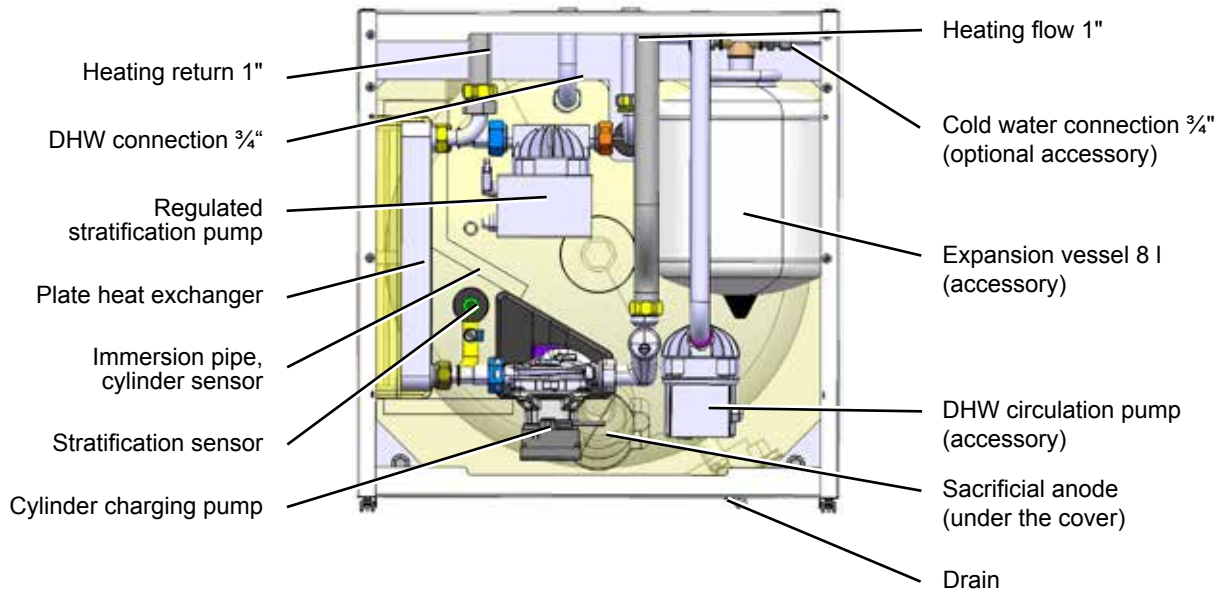


**Note** TS stratification cylinder cannot be installed with COB-40

### COB component description



### Component description TS



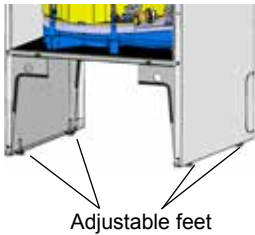
## 9 Siting instructions

### Transport

#### Boiler/stratification cylinder



### Installation information



- The boiler and the stratification cylinder are transported, fully packaged, on a pallet
- A sack truck is a suitable means of transportation
- Position the sack truck behind the boiler or stratification cylinder, secure with a strap and transport to the installation location
- Remove strap and packaging
- Remove the two fixing screws on the pallet
- Lift the boiler and/or stratification cylinder off the pallet

**Note** - A level and load-bearing base is required for the installation of the boiler or the stratification cylinder, to prevent air collection in the boiler and therefore system faults.

- Level the boiler and stratification cylinder horizontally using adjustable feet.



- Open flue oil condensing boilers must only be installed in a room which complies with the appropriate ventilation requirements. Otherwise there is a risk of asphyxiation or poisoning from the escaping flue gas, caused by operation with a leaking flue gas system.

**Note** - The boiler may only be installed in a frost-free room to prevent the frost damaging the installation. Drain the boiler, stratification cylinder and heating system if there is a risk of frost when the system has been shut down.

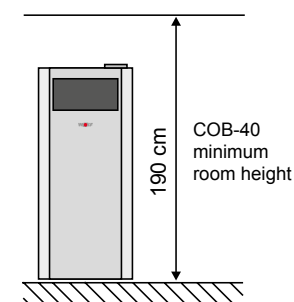
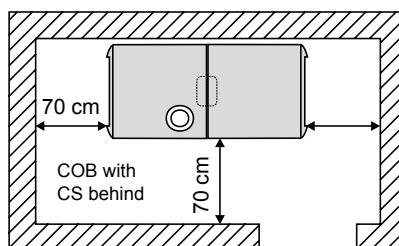
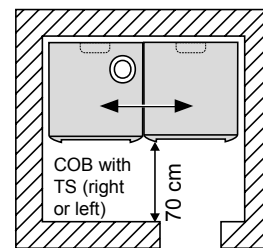
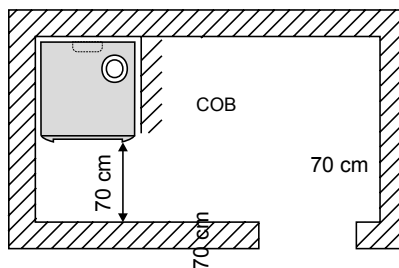
**Note** - The boiler may not be installed in a room with corrosive vapours or in very dusty conditions (workshops, washrooms, hobby rooms etc.), since this may lead to damage to the components and/or heavy contamination of the heat exchanger.

**Note** - The combustion air must be free from halogenated hydrocarbons. Halogenated hydrocarbons lead to premature aging of the heat exchanger, due to corrosion.

With the COB, a surface temperature of 40°C is not exceeded during proper use. For installation in oil storage rooms, the respective state fire regulation must be adhered to.

### Recommended minimum wall clearances

The COB and TS are installed adjacent to the wall, which means that a clearance of 70 cm only needs to be observed at the front. When installing the boiler, you should observe the recommended wall clearances in order to simplify installation, maintenance and servicing. The COB-40 requires a minimum room height of 1.90 m. The minimum clearance via COB-15/20/29 is 30 cm, for the COB-40 this is 40 cm.



## Safety equipment

### Note:

Provide a drain & fill valve at the lowest point in the system.

The COB has **not** been fitted with an expansion vessel at the factory. This must be fitted externally (available from the Wolf accessories range). The expansion vessel must be sized sufficiently, in accordance with DIN 4807.



**There should not be a shut-off valve between the expansion vessel and the oil condensing boiler, because otherwise the pressure build-up would permanently damage the boiler during heating. There is a risk of system components rupturing, giving rise to a risk of scalding.**

This does not include butterfly valves upstream of the expansion vessel. The safety assembly from the Wolf accessories range includes an integral 3-bar safety valve. Route the discharge pipe into a drain outlet.

The minimum system pressure is 1.0 bar.

The oil condensing boiler is permitted exclusively for sealed systems of up to 3 bar. The maximum flow temperature is factory-set to 75°C and may be adjusted to 90°C if required. In DHW mode, the max. flow temperature is factory-set to 80°C and may be adjusted to 90°C if required.

**Note** It is only possible to refrain from using a minimum flow rate at temperatures lower than 80°C, to prevent damage to the heat exchanger from overheating and steam knocking.

**Note** The return line to the appliance must have a dirt trap. A sludge separator with magnetite separator should be used to protect the appliance and the high efficiency pump from dirt/sludge and magnetite.

Deposits in the heat exchanger may lead to boiling noise, a drop in performance or faults in the appliance.

## Hydraulics

**Note** Before commissioning, carry out a tightness test on all hydraulic pipework:

If the appliance is not watertight, there is a risk of leaks and resulting material losses.

Test pressure on the heating water side max. 4 bar

Prior to testing, close the shut-off valves in the heating circuit for the appliance, because otherwise, the safety valve (accessory) opens at 3 bar. The appliance has already been tested at the factory for tightness at 4.5 bar.

The maximum flow rate must not exceed 6000 l/h (100 l/min)

## Treatment of heating water in accordance with VDI 2035:

### Filling

Potable water may be used as filling and top-up water if the limits in table 1 are not exceeded. Otherwise, the water must be treated using a desalination process. If the water quality does not meet the required values, the warranty for components on the water side becomes void.

**Note** The only permissible water treatment process is desalination.

Thoroughly flush the system prior to commissioning. In order to keep oxygenation as low as possible, it is recommended to flush the system using tap water and then to use this water for the water treatment (position the dirt filter upstream of the ion exchanger).

**Note** Heating water additives such as antifreeze or inhibitors are not permitted, since they can damage the heating water heat exchanger. Alkalisating additives may be used by a water treatment specialist to stabilise the pH value.

### Filling

In order to prevent corrosion damage to the aluminium heating water heat exchanger, the pH value of the heating water must be between 6.5 and 9.0.

**Note** In mixed installations, a pH value of 8.2 to 9.0 must be maintained in accordance with VDI 2035!

The pH value should be checked again 8-12 weeks after commissioning, as under certain circumstances, chemical reactions may cause it to change. If it does not fall within this range after 8-12 weeks, remedial measures must be taken.

### Electrical conductivity and water hardness

Heating water quality requirement relating to the entire heating system

Limits in relation to specific system volume $V_A$ ( $V_A = \text{system volume} / \text{max. Rated heating output}^{(1)}$ ) conversion, total hardness: $1 \text{ mol/m}^3 = 5.6 \text{ }^\circ\text{dH} = 10^\circ\text{fH}$										
Total heating output		$V_A \leq 20 \text{ l/kW}$			$V_A > 20 \text{ l/kW and } < 50 \text{ l/kW}$			$V_A \geq 50 \text{ l/kW}$		
		Total hardness/ total alkaline earths		Conductivity <sup>(2)</sup> at 25°C	Total hardness/ total alkaline earths		Conductivity <sup>(2)</sup> at 25°C	Total hardness/ total alkaline earths		Conductivity <sup>(2)</sup> at 25°C
	[kW]	[°dH]	[mol/m <sup>3</sup> ]	C [µS/cm]	[°dH]	[mol/m <sup>3</sup> ]	C [µS/cm]	[°dH]	[mol/m <sup>3</sup> ]	C [µS/cm]
1	≤ 50	≤ 16,8	≤ 3,0	< 800	≤ 11,2	≤ 2	< 800	≤ 0,11 <sup>(3)</sup>	≤ 0,02	< 800
2	50-200	≤ 11,2	≤ 2	< 100	≤ 8,4	≤ 1,5	< 100	≤ 0,11 <sup>(3)</sup>	≤ 0,02	< 100

The total amount of fill and top-up water over the life cycle of the boiler must not exceed three times the nominal volume of the heating system.

<sup>(1)</sup> According to VDI 2035, in systems with multiple boilers, use the maximum rated heating output of the smallest heat source  
<sup>(2)</sup> High salinity < 800 µS/cm Low salinity < 100 µS/cm  
<sup>(3)</sup> < 0.11°dH recommended standard; permissible up to limit of < 1°dH

Table 1

### Commissioning

Vent the system completely at maximum system temperature.

The commissioning parameters must be recorded in the system log. This system log must be handed to the system operator following commissioning of the system. From that point onward, the operator is responsible for maintaining and keeping the system log. The system log is provided with the accompanying documents.

The water values, in particular the pH value, electrical conductivity and hardness, must be measured **annually** and documented in the system log.

### Top-up water

The total amount of fill water used over the life cycle of the boiler must not exceed three times the system volume (oxygenation!). Where a system requires large volumes of top-up water (e.g. more than 10 % of the system volume per year), the cause must be sought immediately and the fault remedied.



**Example:**

Limits in relation to specific system volume $V_A$ ( $V_A$ = system volume / max. Rated heating output <sup>1)</sup> ) conversion, total hardness: 1 mol/m <sup>3</sup> = 5.6 °dH = 10°fH										
Total heating output	$V_A \leq 20$ l/kW				$V_A > 20$ l/kW and $< 50$ l/kW			$V_A \geq 50$ l/kW		
	Total hardness/ total alkaline earths		Conductivity <sup>2)</sup> at 25°C		Total hardness/ total alkaline earths		Conductivity <sup>2)</sup> at 25°C		Total hardness/ total alkaline earths	
	[kW]	[°dH]	[mol/m <sup>3</sup> ]	C [ $\mu$ S/cm]	[°dH]	[mol/m <sup>3</sup> ]	C [ $\mu$ S/cm]	[°dH]	[mol/m <sup>3</sup> ]	C [ $\mu$ S/cm]
1	$\leq 50$	$\leq 16,8$	$\leq 3,0$	$< 800$	$\leq 11,2$	$\leq 2$	$< 800$	$\leq 0,11^{3)}$	$\leq 0,02$	$< 800$
2	50-200	$\leq 11,2$	$\leq 2$	$< 100$	$\leq 8,4$	$\leq 1,5$	$< 100$	$\leq 0,11^{3)}$	$\leq 0,02$	$< 100$

The total amount of fill and top-up water over the life cycle of the boiler must not exceed three times the nominal volume of the heating system.

<sup>1)</sup> According to VDI 2035, in systems with multiple boilers, use the maximum rated heating output of the smallest heat source  
<sup>2)</sup> High salinity  $< 800 \mu\text{S/cm}$  Low salinity  $< 100 \mu\text{S/cm}$   
<sup>3)</sup>  $< 0.11^\circ\text{dH}$  recommended standard; permissible up to limit of  $< 1^\circ\text{dH}$

System with a COB-20 system volume = 800 l

Total hardness of untreated potable water = 18°dH

$$V_A = 800 \text{ l} / 20 \text{ kW} = 40 \text{ l} / \text{kW}$$

Because the specific System volume  $V_A$  is between 20 and 50 l/kW with a total output of  $< 50$  kW, the fill and top-up water must be in the range of 2 to 11.2°dH. If the total hardness of the untreated potable water is too high, some of the filling and top-up water must be desalinated.

A% desalinated water must be added.

$$A = 100\% - [(C_{\text{max}} - 0.1^\circ\text{dH}) / C_{\text{Potable water}} - 0.1^\circ\text{dH}] \times 100\%$$

$C_{\text{max}}$ : Maximum permissible total hardness in °dH  
 $C_{\text{DHW}}$ : Total hardness of untreated potable water in °dH

$$A = 100\% - [(11.2^\circ\text{dH} - 0.1^\circ\text{dH}) / (18^\circ\text{dH} - 0.1^\circ\text{dH})] \times 100\% = 38\%$$

38% of the filling and top-up water must be desalinated.

$$V_{\text{treatment}} = 38\% \times 800 \text{ l} = 304 \text{ l}$$

At least 304 L of desalinated water must be added when filling the system.

The system can then be topped up with potable water.

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 Clips
- 1 Corrugated stainless steel pipes 1", length 1300 mm
- 1 corrugated stainless steel pipe 1", length 800 mm
- 1 silicone grease tube



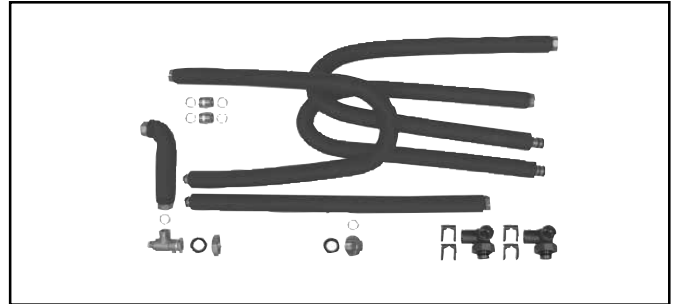
**COB connection set with TS adjacent to the wall** comprising:

- 2 cross pieces, each with two connections
- 4 Clips
- 3 Corrugated stainless steel pipe 1", length 1300 mm
- 1 corrugated stainless steel pipe 1", length 800 mm
- 2 corrugated stainless steel pipes ¾", length 800 mm
- 1 silicone grease tube
- 1 trimming set ¾"



**COB connection set adjacent to the wall for a floorstanding cylinder up to SEM-1-750 and SE-2-750** comprising:

- 2 cross pieces, each with two connections
- 3 Corrugated stainless steel pipe 1", length 1300 mm
- 1 corrugated stainless steel pipe 1", length 800 mm
- 4 Clips
- 1 silicone grease tube
- 6 flat packings 1"
- 1 Pipe bend
- 2 flat packings 1½" EPDM
- 1 Pump
- 1 adaptor fitting G1½ (fem.)
- 2 double nipples G 1 (male) - G 1 on G1 (male)
- 1 elbow with air vent



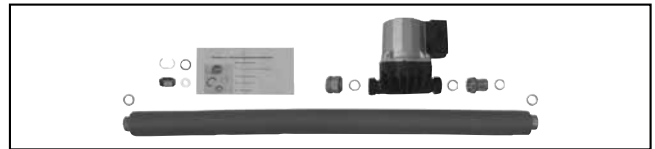
**TS accessory set for cold water** comprising:

- 1 expansion vessel 8 l
- 1 cold water connection pipe to the expansion vessel
- 2 double nipples ¾"
- 1 trimming set ¾"



**TS DHW circulation pump accessory set** comprising:

- 1 analogue DHW circulation pump
- 1 corrugated stainless steel pipe ¾"
- 1 trimming set ¾"



**Pipe assembly** comprising:

- 1 Circulation pump (EE 0.2)
- 2 thermometers in flow and return
- 2 ball valves in flow and return
- Incl. / excl. mixer
- With manifold for 2 or 3 pipe assemblies



**Neutralisation box, comprising:**

- 1 granulate fill
- 1 Installation accessories
- (for standard fuel oil EL (sulphur content > 50 ppm), neutralisation of the condensate is required).



**Condensate lifting system with a potential-free alarm output** comprising:

- 1 Condensate pump with potential-free alarm output
- 1 Condensate tank with cover and wall mounting bracket
- 1 PVC hose, 10 mm (6 m long)
- 1 Non-return valve
- 1 Condensate inlet adaptor



For further accessories, such as a safety assembly 1" or wall mounting bracket for pipe assembly, etc., see "Heating systems" pricelist

Example: COB-15/20/29 oil condensing boiler with TS stratification cylinder on the right, floorstanding (when looking at front of boiler). The pipework for the heating flow and heating return, as well as the heating water flow and heating water return, are connected to the stratification cylinder with corrugated stainless steel pipes (accessories).(see Chapter "Installation - accessories")

### Cold water connection

A maintenance valve must be installed in the cold water supply line. If the pressure of the cold water supply is more than the maximum permitted operating pressure of 10 bar, a tested and certified pressure reducer must be installed. If mixer taps are used, provide a centralised pressure reducer. Observe the regulations of DIN 1988 as well as those of your local water supply utility when connecting cold water and DHW. Your warranty rights may be lost if the installation does not comply with the illustration shown.

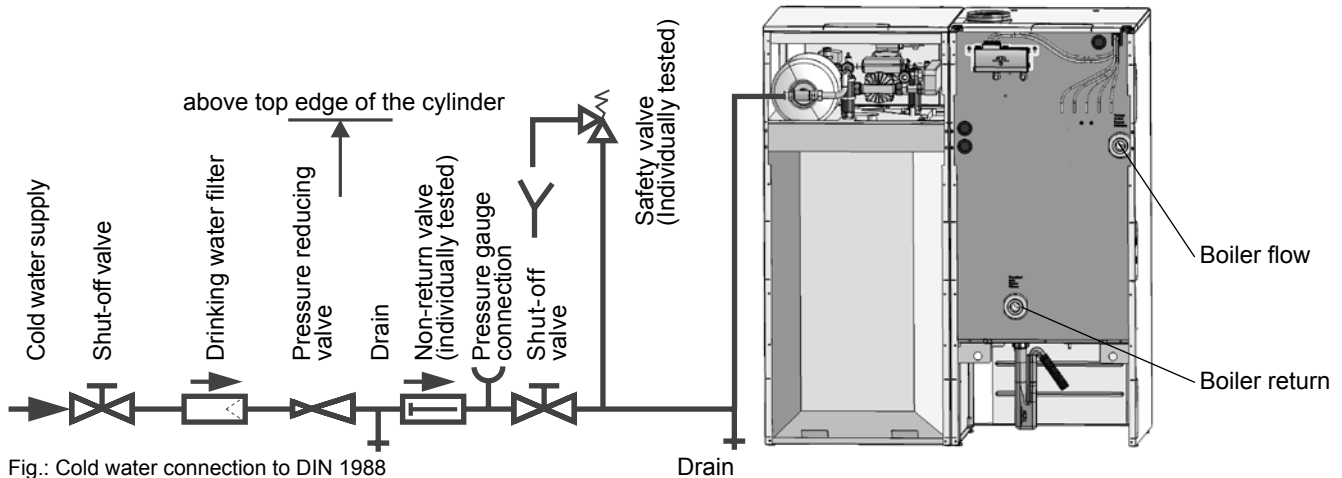


Fig.: Cold water connection to DIN 1988

### Cylinder connection

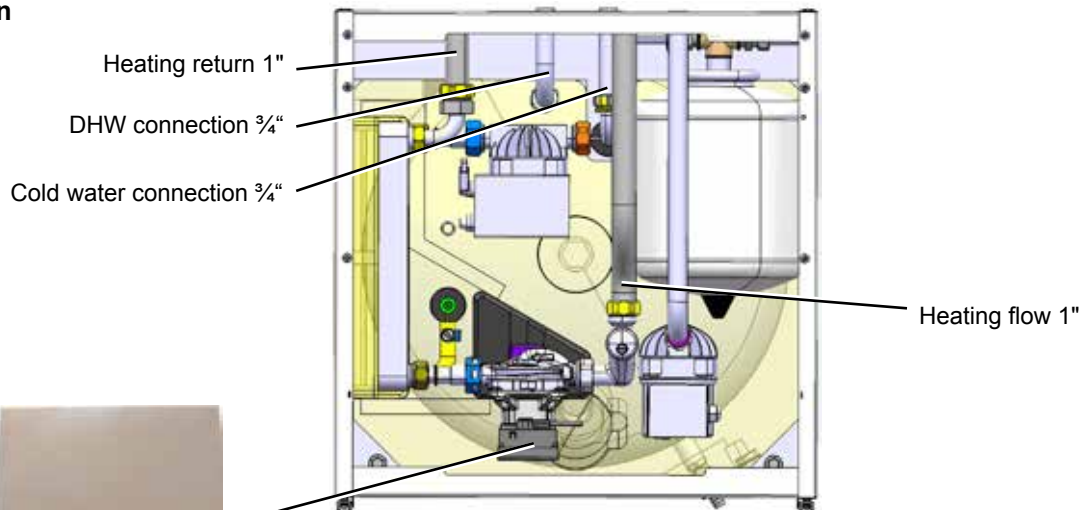


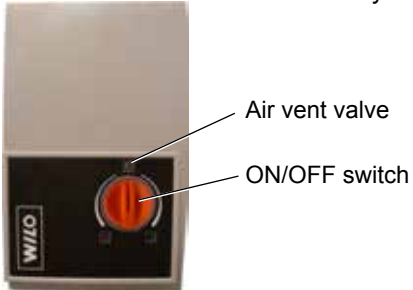
Fig.: TS stratification cylinder



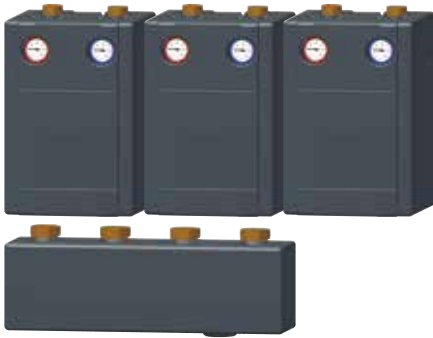
When installing the stratification cylinder, ensure that the ON/OFF switch of the cylinder charging pump is set to constant pressure. Information on the electrical connection is located in the Electrical connection chapter.

## Venting the heating circuit of the TS stratification cylinder

- 1) Open the cover of the air vent valve and fill the heating system.
- 2) Activate the DHW demand once the installation has been filled.
- 3) Set the ON/OFF switch of the cylinder charging pump to "Vent".



- 4) Set the cylinder charging pump to constant pressure again and start the cylinder.



**Pipe assembly for three heating circuits with manifold for safety assembly installation**



**Pipe assembly for two heating circuits with manifold for safety assembly installation**



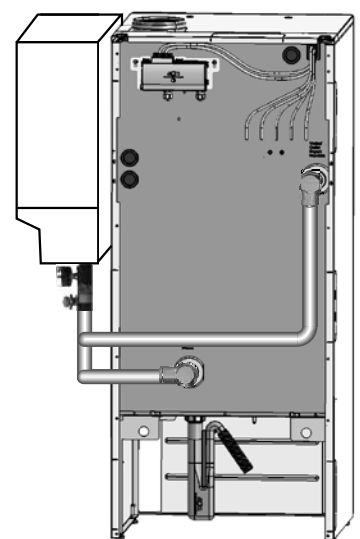
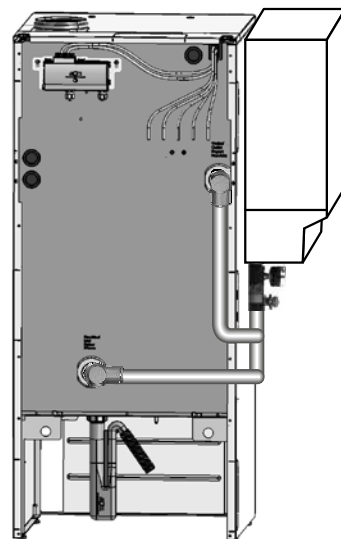
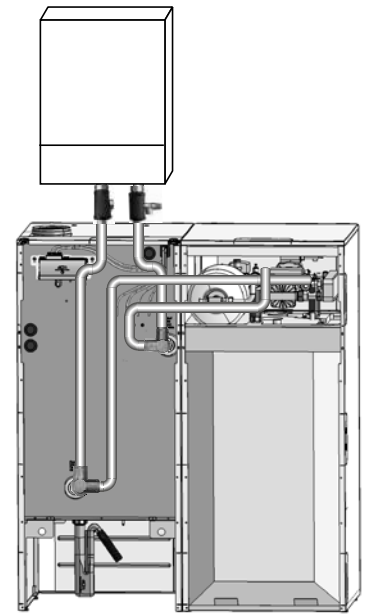
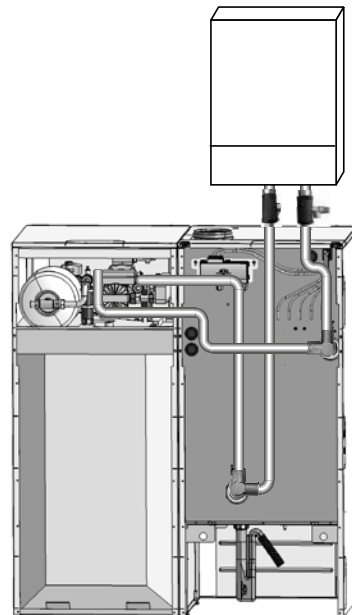
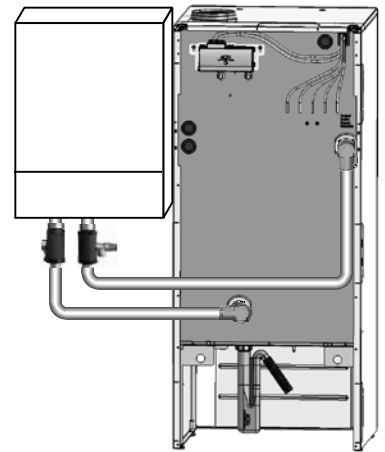
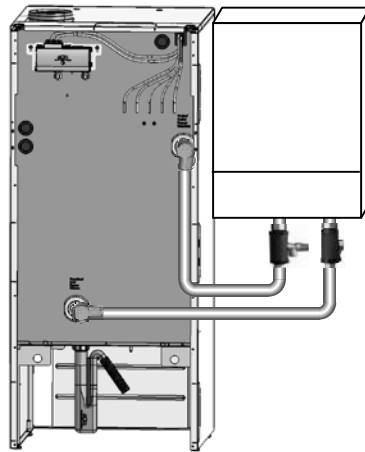
**Pipe assembly for one heating circuit for safety assembly installation**



**Safety assembly for fixing to the corrugated stainless steel pipes of heating flow and return**

The safety assembly and the required pipe assembly can be installed on the left, on the right or at the back of the boiler on a wall or attached to the side of the boiler casing.

Note: The pipe assembly for three heating circuits should always be wall mounted.



## Oil filter / oil line installation

Secure the filter vent combination with the integrated shut-off valve and retainer to the positions provided for this. In doing this, the oil hose should be a max. of 90 cm outside of the housing during rear wall implementation. The filter vent combinations must be freely accessible once installed.

**Note** Only use filter inserts made of sintered plastic with 25-40 µm to prevent contamination of the oil nozzle within the service interval. Contaminated oil nozzles lead to the boiler failing.

The system must be connected as a single line system. A filter/air vent valve combination with an integrated shut-off valve from the Wolf product range must be installed.

**Note** Older two-line systems must be converted to single line systems. Two-line systems lead to accelerated oil ageing and the penetration of air into the oil. They are no longer in line with the latest technology.

**Only materials that are suitable for oil lines should be used. In the case of copper pipes, only metallic compression fitting olives with support sleeves are permissible. They are a reliable means of preventing air intake.**

In accordance with TRÖI, the oil supply shall be checked for its perfect condition and proper installation and a final tightness check shall be carried out. This inspection shall be performed:

- Before commissioning
- For underground oil lines, before they are covered and
- after work on the oil lines (except for oil filter changes)

**Note** In order to prevent damage to the oil pump, the fuel oil must be supplied to the filter using a suitable manual pump. The temperature must not fall below +5 °C. External tanks must have supplementary heating facilities. The oil lines must be installed while the system is isolated from the electrical supply in order to avoid leaks. Contaminants can lead to system damage. The oil line must be flushed prior to commissioning.

## Maximum line lengths in single line systems

The maximum possible suction line length results from the pressure losses on the pipes and fittings and the inlet height. All vertical and horizontal pipes are identified as line lengths.

The following table can be used for sizing. When sizing the line lengths, the filter, non-return valve and six 90° bend resistances are already taken into account.

Installing suction lines of a max. of 40 m is recommended.

The maximum permitted negative pressure in the suction line is 0.3 bar.

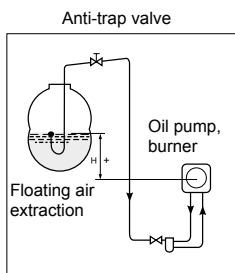


Fig.: Single line system with pump lower than tank

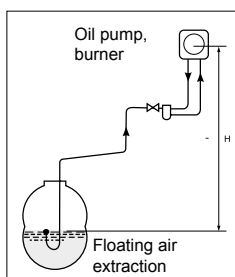


Fig.: Single line system with pump higher than tank

Device	Throughput kg/h	Inner line ∅ mm	Inlet height H (m)							
			+4	+3	+2	+1	0	-1	-2	-3
COB-15 COB-20 COB-29	Up to 2.5	4	40	40	40	40	40	35	25	13
COB-40	Up to 3.7	4	40	40	40	38	29	22	15	9

Floating or raised suction shall be used, if permitted.

Floating suction is not permitted for underground oil tanks or for oil tanks for which a special draw-off device is prescribed by the manufacturer.

Oil lines that are too large may lead to operating faults caused by trapped air. The oil supply must therefore be designed with an interior line diameter of 4 mm.

If the suction height or the max. suction height for sunken tanks is greater than indicated in the table above, an oil supply unit with an intermediate cylinder is required in the immediate vicinity of the boiler. It must be possible for the oil to be supplied to the oil burner pump, which is a separate one on the device, from the intermediate cylinder. It must be possible to control the oil supply unit independently of the device, i.e. a signal pick-up on the boiler should not occur for this purpose. When connecting a feed pump in the supply line, the negative pressure must not exceed 0.5 bar

## Anti-trap valve

With negative pressure controlled anti-lift valves, the negative pressure on the inlet side is increased considerably. It is often difficult to adhere to the maximum permissible negative pressure of 0.3 bar in the oil line. An electromagnetic control anti-trap valve shall be used in this case.

The electrical anti-lift devices can be connected to the COB in two ways:

1. The anti-lift valve is connected at output A1. To do this, A1 must be set to 9 (ext. fuel valve), see HG14.
2. If output A1 is already being used (e.g. for a DHW circulation pump), an adaptor plug can be used. The adaptor is plugged in between the motor oil pump and the motor plug.

## General information on the fuel oil

### Information on the use of bio-oil blends:

### Use low sulphur fuel oil to protect the environment.

#### 1. Permitted bio-oil constituents

The COB (from date of manufacture May 2010) can be operated with fuel oil with up to 10% alternative constituents –B10- to DIN V 51603-6.

#### 2. Bio-oil quality

The bio-oil must comply with EN 14213 when the customer tank is filled.

#### 3. Oil storage tanks

The customer must obtain **written** confirmation from the manufacturer or supplier regarding the suitability of the tank for the use of bio-oils, giving the maximum permitted FAME percentage. It is important to ensure that the tank fittings, seals, filters and oil lines are also suitable for bio-oil.

#### 4. Tank cleaning

FAME acts as a solvent, removing all deposits and residues in the tank and the oil lines. For this reason, clean the tank before filling with bio-oil.

#### 5. Storing bio-oil

Bio-oil is a natural product with a lower shelf life than fuel oil EL. Bio-oil must therefore be stored at low temperatures (ambient temperature between 5 °C and 20 °C) and protected from exposure to direct sunlight (in the case of plastic tanks in particular).

Up-to-date information indicates that bio-oil should not be stored for longer than one year, but the mineral oil industry is currently searching for suitable **additives to increase the shelf life**.

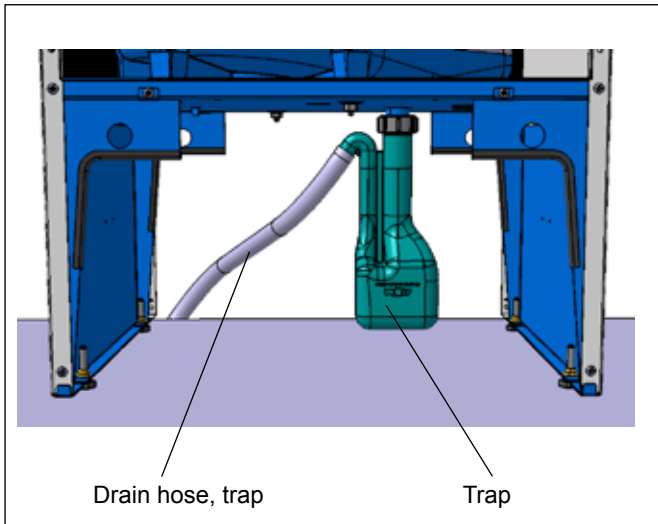


Fig.: Example drain hose on the trap

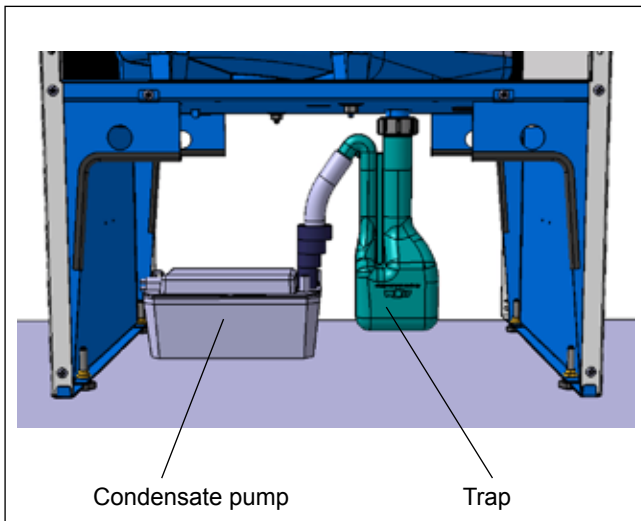


Fig.: Example Condensate pump on the trap

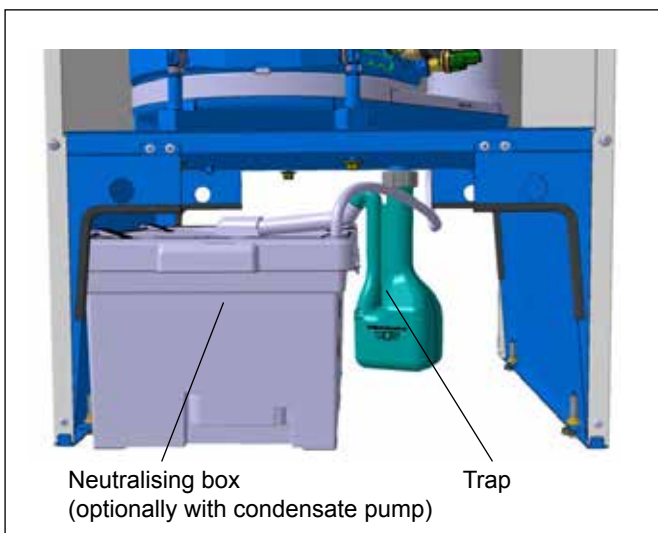


Fig.: Example Neutralising box (optionally with condensate pump) on the trap

If low sulphur fuel oil EL (sulphur content < 50 mg/kg) is used, it may be possible to forego neutralisation of the condensate after consultation with the lower water authority.

The condensate may only be drained in drain lines in accordance with Code of Practice DWA-A251.

Neutralisation is still required if the condensate has not been mixed with sufficient non-domestic waste water (at least 20 times the volume of the expected amount of condensate).

After removal of the cover, connect the supplied trap to the connectors on the combustion chamber pan.

**Note** The sealing plugs located on the trap sealing plugs must be removed before assembly of the trap, so that the condensate can freely flow through the trap. Otherwise, this leads to an operating fault.

With a flexible trap drain hose, form a connection from to the on-site drain with a continuous slope (condensate drain level from trap 260 mm).

When using a condensate pump, route the flexible trap drain hose into the condensate pump and form a connection there to the on-site drain.



**The trap must be filled with water prior to commissioning. Operating the appliance with an empty trap presents a risk of poisoning or asphyxiation due to the escape of flue gases. Undo the trap, remove and fill until water runs out of the drain hole on the side. Refit the trap and ensure the gasket seals tightly.**

If condensate is directly routed to the on-site drain, ventilation must be provided so that the drain pipe cannot affect the boiler.

For standard fuel oil EL (sulphur content > 50 ppm), neutralisation of the condensate is required.

**Note** The neutralisation box must be filled with water prior to commissioning! This checks whether all connections are assembled in a sealed way. Operating the device with a leaking connection from the neutralisation box carries a risk of waster damage from the leaking condensate.

**Observe the neutralisation box installation instructions.**



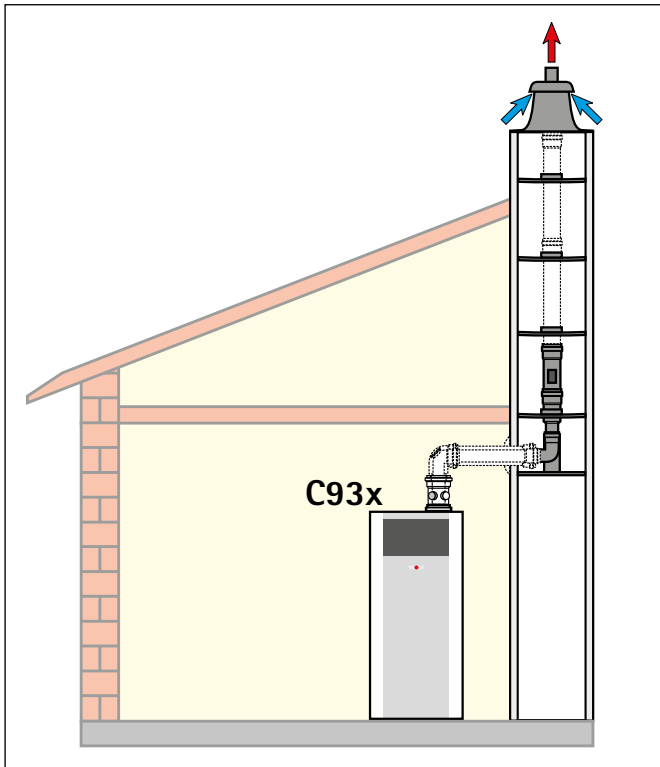


Fig.: Example of a C93x balanced flue system

Use only original Wolf components for flues and concentric balanced flue systems.  
 Observe the technical information regarding ventilation air supply / flue systems prior to installing the flue or making the flue connection (see the Technical Information chapter)!

As regulations in the individual Federal States [Germany] differ, we recommend consulting the relevant authorities and local flue gas inspector prior to installation.

**Note** For COB-15/-20/-29, the supplied flue gas test nipples must be fitted to the air/flue outlets. Alternatively, the flue gas test nipples may also be directly fitted horizontally after the 87° bend fitted to the boiler. When doing this, ensure that the balanced flue is routed over the appliance in such a way that the displacement device can be removed (minimum clearance via COB-15/-20/-29 is 30 cm; for COB-40 it is 40 cm).

**Note** The local flue gas inspector must have clear access to the flue gas test nipples.

Flue connections are created using female connections and gaskets. Always arrange female connections against the direction of the condensate flow.

**Note** The balanced flue should be installed with a slope of at least 3° (6 cm/m) to the oil condensing boiler. Fit spacer clips to secure the equipment in position.  
 In the worst case scenario, a lesser slope of the air/flue gas routing system may lead to corrosion or operating faults.

**Note** Always bevel or deburr trimmed flues to ensure gas-tight installation of pipe joints. Ensure that gaskets are fitted correctly. Remove all contamination prior to installation - never fit damaged parts.

Between the flue terminal and the roof surface, there must be a clearance of at least 0.4 m.

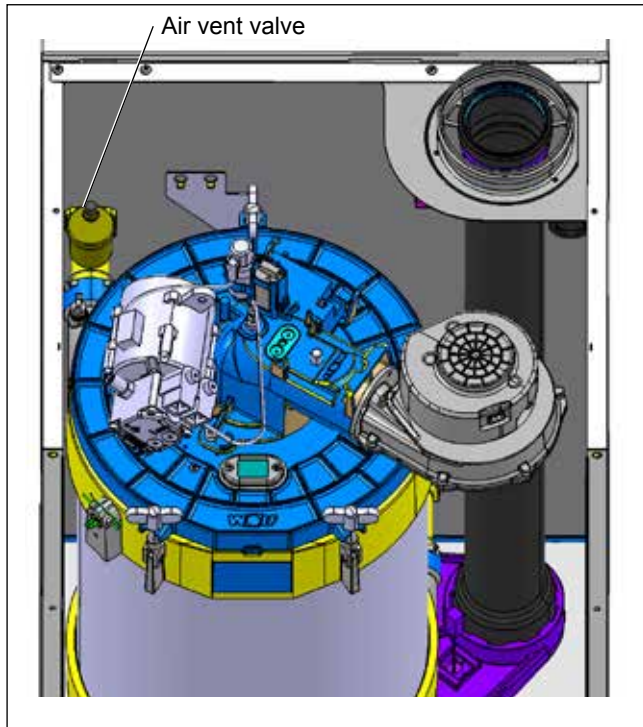


Fig.: Venting the COB

### Filling the heating system

**Note** Fill the system and vent it properly to ensure perfect boiler function.

**Before connecting the boiler, flush the heating system to remove residues such as welding pearls, hemp, putty, etc. from the pipework.**

- Open the cap on the vent in the boiler by one revolution.
- Open all radiator valves.
- Fill the system via the return line at 2 bar (1.5 to 2.5 bar).
- With the entire heating system and boiler in a cold condition, slowly via the inspection/BDF valve at the return until 2 bar pressure is indicated.
- Check the entire system for water leaks.
- Start the boiler, set the heating water temperature to position "2" (pump running, illuminated signal ring (as status indicator) constantly green).
- Vent the pump; for this, briefly open and then retighten the air vent screw.
- Vent the heating circuit completely, switching the boiler ON for 5 sec. and OFF for 5 seconds at the ON/OFF switch, five times in succession.
- When the system pressure drops below 1.5 bar, top up the water.

### Draining the heating system



**Switch off installation (see operating instructions) and let cool to a max. of 40°C, there is a risk of scalding otherwise.**



**Secure the heating system against restarting, otherwise there is a risk of electrocution.**

- Open drain valve (BDF valve) on the boiler, for example.
- Open the air vent valves on the radiators.
- Drain off the heating water

### General information



The installation may be carried out only by an approved electrical contractor. Observe VDE regulations as well as all local regulations of your power supply utility.



The device power supply terminals are 'live' even when the ON/OFF switch has been switched OFF.

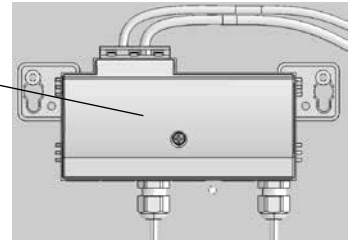


For installation in Austria: Observe the ÖVE regulations and requirements and those of your local power supply utility.



Isolate the boiler from the power supply before changing the fuse. The ON/OFF switch on the appliance does not provide isolation from the power supply. Danger from 'live' electrical components. Never touch electrical components or contacts as long as the boiler has not been isolated from the power supply. Danger to life!

Electric Junction boxes



### Terminal box

In the delivered condition, the terminal box is fitted to the back panel of the boiler.

Unclip the terminal box from the holder. The terminal box can be mounted on the wall to the right or left of the boiler. The control and safety devices are fully wired and tested.

### Power supply

In the case of a permanent connection, provide the power supply via a mains isolator (e.g. fuse, heating system emergency stop), which ensures at least 3 mm contact separation for all poles. Power cable, flexible, 3x 1.0 mm<sup>2</sup> or rigid, max. 3x 1.5 mm<sup>2</sup>. The maximum current carrying capacity of the outputs is 2 A, but a total of 5 A must not be exceeded.

### Installation information – electrical connection

Isolate the system from the power supply before opening.

Unclip the terminal box from the holder.

Open the terminal box.

Screw the strain relief into the holes provided.

Strip approx. 70 mm off the power cable insulation.

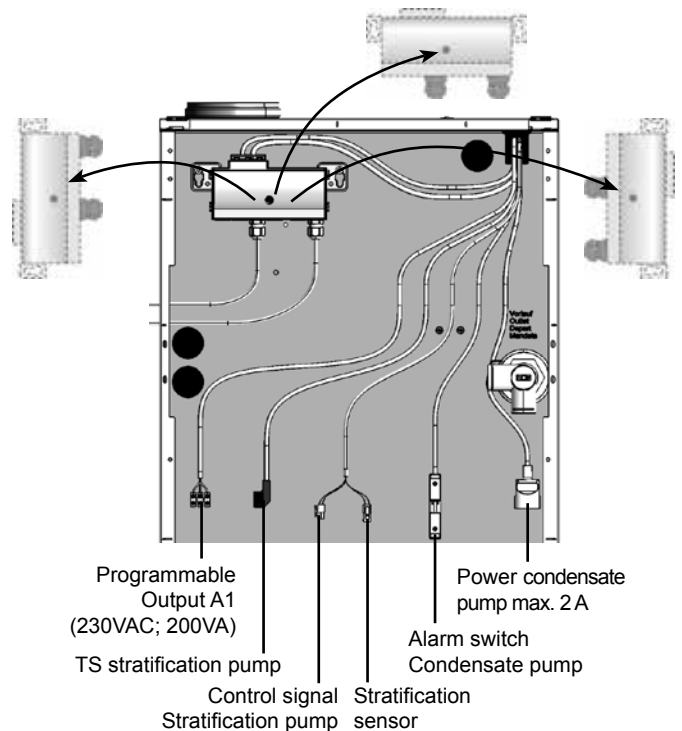
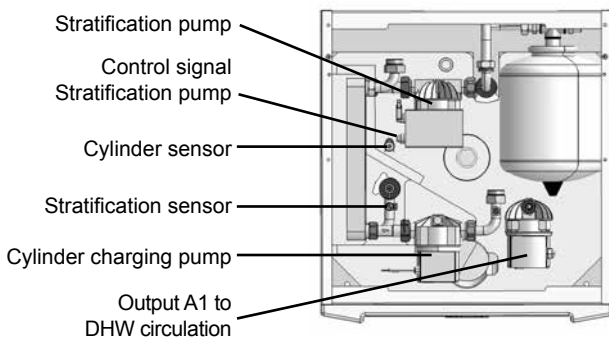
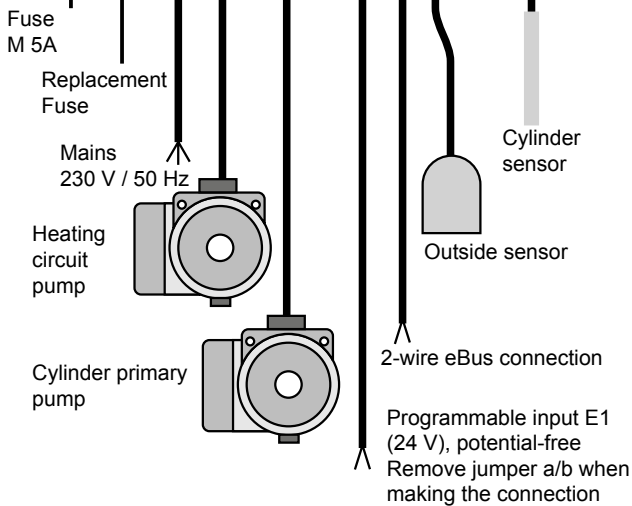
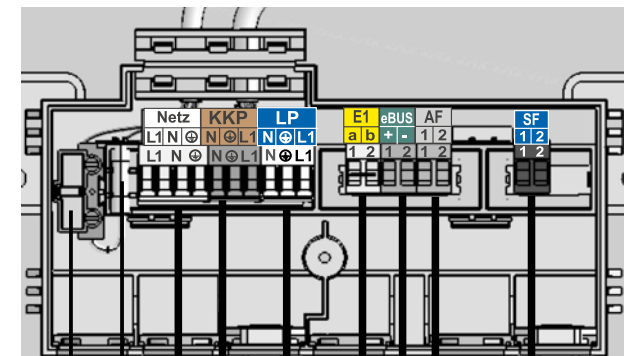
Push the cable through the strain relief and tighten the strain relief.

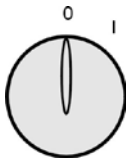
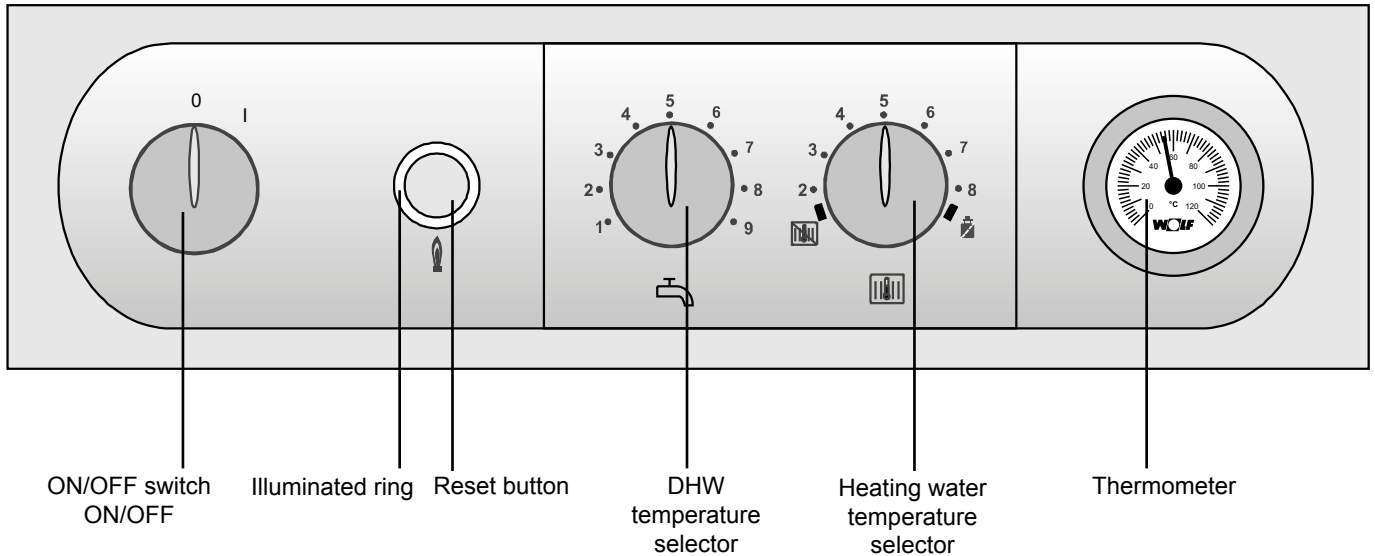
Terminate the appropriate cores at the Rast-5 plug.

Push the inserts back into the terminal box casing.

Insert the Rast-5 plug

Fit the cover.





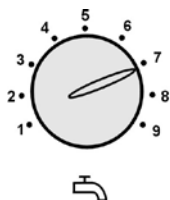
**ON/OFF switch**  
The condensing boiler is OFF in position 0.



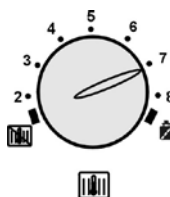
**Reset**  
A fault is reset by pressing the reset button which will also restart the system. If the boiler is in a cycle block, this is reset by pressing the button (2 seconds)

**Illuminated ring for status display**

Display	Meaning
Flashing green	Stand by (ON/OFF switch ON, no heat demand, pump OFF)
Constant green light	Heat demand: pump running; burner OFF
Flashing yellow	Emissions test mode
Constant yellow light	Burner on; flame steady
Flashing red	Fault



**DHW temperature selector**  
When oil boilers are combined with a DHW cylinder, setting 1-9 corresponds to a cylinder temperature of 15-65 °C. **DHW temperatures of over 60 °C are not permissible in conjunction with a TS stratification cylinder.** In combination with a BM programming unit, adjustment at the DHW temperature selector is disabled. The temperature is set at the BM programming unit.



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

## Setting




### Winter mode (settings 2 to 8)

In winter mode, the boiler heats the flow temperature to the value set on the thermostat. According to the pump operating mode, the circulation pump operates constantly (factory setting) or only in parallel with the burner activation / run-on period.





### Summer mode

The winter mode is deactivated by rotating the heating water temperature  selector into position. In other words, the boiler will then operate in summer mode. Summer mode (heating OFF) means only DHW heating. Frost protection for the heating system and pump anti-seizing protection, however, remain enabled.



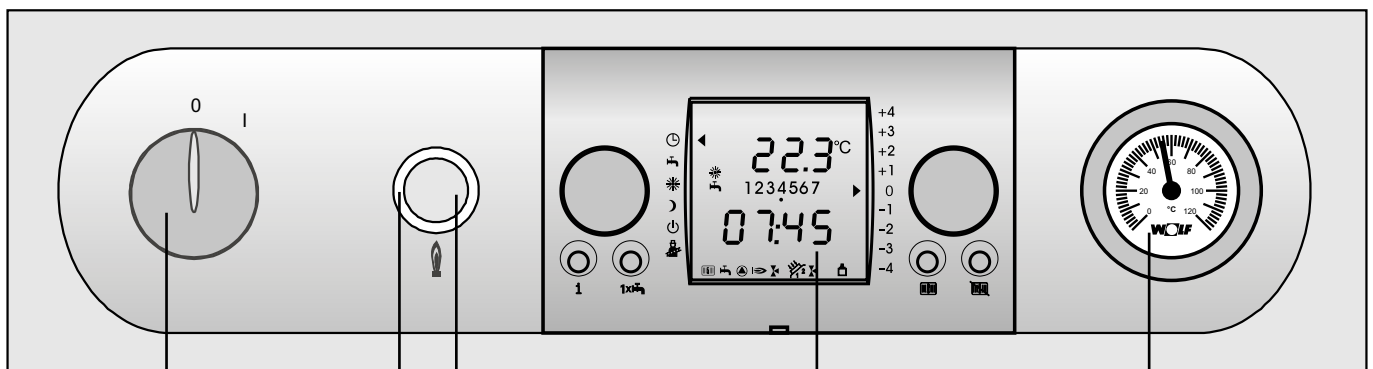
### Emissions test mode

The emissions test mode is activated by rotating the heating water temperature  selector into position. The illuminated signal ring flashes yellow. After the emissions test mode has been activated, the boiler will heat with the selected maximum output. Any previous cycle block will be cancelled. The emissions test mode terminates after 15 minutes or when the maximum flow temperature has been exceeded. To reactivate, turn the heating water temperature  selector anti-clockwise and then back into position.

## Anti-seizing pump protection

In summer mode, the circulation pump operates for approx. 30 seconds after a maximum idle period of 24 hours.

## Control unit with BM programming unit



ON/OFF switch  
ON/OFF

Illuminated  
ring

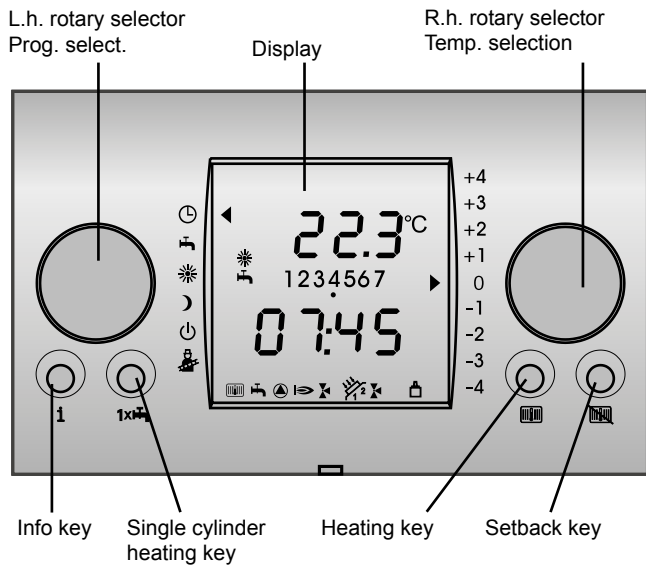
Reset button

BM programming unit

Thermometer

The control parameters can only be modified or displayed via Wolf control accessories with eBUS capability. For installation and procedures, check the operating instructions of the relevant accessories.

### BM programming unit



**Note** Modifications must only be carried out by a recognised heating contractor or by the Wolf customer service. Incorrect settings may cause damage to and system faults at the boiler.



To prevent damage to the heating system, cancel night setback when outside temperatures fall below -12 °C. If this requirement is not observed, ice may form on the flue outlet. Ice parts which loosen can cause material damage or personal injury.

### Parameter overview / settings report (settings and functions on the following pages)

A: - System parameters  
HG.: - Boiler parameters

Parameter	Setting range	Factory setting	Individual settings
A09	Frost protection limit	-20 to +10°C	+2°C
A10	DHW parallel mode	0 / 1	0
A14	Maximum DHW temperature	60 to 80 °C	65°C
HG 00	Tube trimming	1 to 5	3
HG01	Burner switching differential	5 to 20K	10K
HG06	Pump operating mode	0 to 3	0
HG07	Boiler circuit pump run-on time	0 to 30min	4 min
HG08	Maximum limit, boiler circuit TV-max	40 to 90°C	75°C
HG09	Burner cycle block	1 to 30 min	10 min
HG13	Programmable input E1	1 to 11	1
HG14	Programmable output A1	0 to 14	0
HG15	Cylinder hysteresis	1 to 30K	5K
HG16	N / A		
HG17	N / A		
HG19	Run-on time, cylinder charging pump	0 to 10 min	5 min
HG20	Maximum cylinder charging time	0 to 5 h	2 h
HG21	Minimum boiler water temperature T-boiler min.	20 to 90°C	20°C
HG22	Maximum boiler water temperature T-boiler max.	50 to 90°C	80 °C
HG25	Excess boiler water temperature during cylinder heating	0 to 40K	10K
HG28	Burner operating mode	1 to 5	2
HG 31	Blocking time burner stage 2	0 to 40 min	10 min

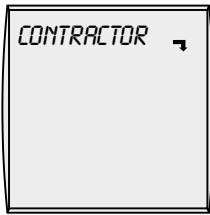
Pressing the r.h. rotary selector calls up control level 2, where you can select the menu levels shown in the overview by turning the rotary selector clockwise.

Pressing the Info key takes you back to the standard display, irrespective of which submenu is currently displayed.

The system also returns to the standard display automatically when no adjustment is made for more than one minute.

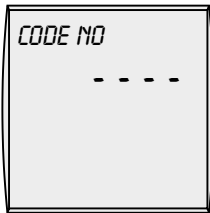
All available set and actual temperatures, burner starts and hours run as well as other system values can be displayed. This scan is identical to that initiated via the Info key.

### Contractor level



Press r.h. rotary selector to, in the 2nd to change to the 2nd programming level. Turn the r.h. rotary selector clockwise to select the contractor level and confirm the selection by pressing the r.h. rotary selector again. The display shows the code scan.

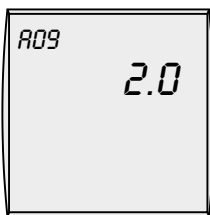
### Code scan



Factory setting: 1

The correct code is set by pressing (display indication flashes) and then turning the r.h. rotary selector **from 0 to 1**. After changing the code from 0 to 1, pressing the r.h. rotary selector again confirms the setting; you are then at the contractor level.

### Frost protection limit Parameters A09



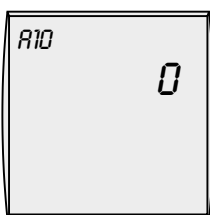
Factory setting: 2 °C  
Setting range: -20 to +10 °C

The boiler circuit pump operates constantly if the outside temperature stays below the selected value. The burner starts and heats the boiler to at least 20 °C if the boiler water temperature falls below +5 °C.

**Note** The factory setting may only be changed if it is guaranteed that heating system and its components will not freeze at low external temperatures.

**Note** Incorrect operation can lead to system faults. Please note when adjusting parameter A09 (frost protection / outside temperature), that frost protection is no longer safeguarded if you set temperatures lower than 0 °C. This can lead to heating system damage.

### DHW parallel mode Parameter A10



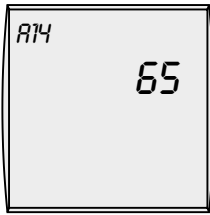
Factory setting: 0  
Setting range: 0 / 1

The heating circuit pump is switched OFF during cylinder heating with **DHW priority (0)**. The boiler energy will then be used exclusively for DHW heating. The burner shuts down and the heating circuit pump is started as soon as the cylinder has reached its set temperature. The cylinder primary pump runs on, in summer operation and at most, for the period selected under parameter HG19 (cylinder primary pump run-on time). In winter mode, the cylinder loading pump runs on for a fixed time of 2 minutes after successful cylinder heating.

The heating circuit pump continues to operate in **parallel DHW mode (1)**. Cylinder heating ends when the cylinder reaches the set water temperature. The cylinder primary pump runs on, in summer operation and at most, for the period selected under parameter HG19 (cylinder primary pump run-on time).

**Note** In parallel DHW mode (1), the heating circuit can temporarily be operated at a higher temperature. Parallel operation in conjunction with a stratification cylinder is not recommended.

### Maximum DHW temperature Parameter A14



Factory setting: 65°C  
Setting range: 60 to 80 °C

At the factory, the maximum DHW temperature is set to 65°C. This temperature can be enabled at 80 °C, if for commercial reasons a higher DHW temperature is required. If pasteurisation has been activated (BM), the DHW cylinder will be heated to the selected maximum DHW temperature during the first cylinder heating of the day.



**Take adequate measures to prevent scalding.**

**Parameter HG22 (maximum boiler water temperature) should be set at least 5 K higher than the selected maximum DHW temperature.**

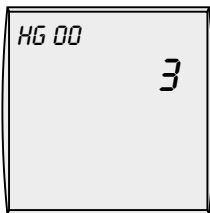
**In conjunction with the TS stratification cylinder, DHW temperatures of over 60°C are not permitted, since this leads to accelerated scaling in the DHW heat exchanger.**

Note

**To save energy and protect against scaling if the total hardness is greater than 15 °dH (2.5 mol/m<sup>3</sup>), the DHW temperature may be set to a maximum of 50°C.**

**If the total hardness is greater than 20 °dH (3.58 mol/m<sup>3</sup>), we recommend using a water treatment facility in the cold water supply line for DHW heating, to prolong the maintenance interval (descaling DHW heat exchanger).**

### Tube trimming Parameter HG00



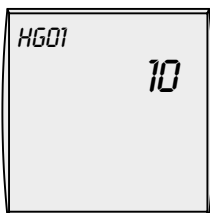
Factory setting: 3  
Setting range: 1 to 5

This parameter shifts the minimum and maximum fan speed parallel downwards or upwards.

This enables the CO<sub>2</sub> value for burner stages 1 and 2 to be adjusted at the same time. See also the chapter "CO<sub>2</sub> adjustment by matching the pipe lengths"

One unit = 120 r.p.m  
Setting 3 = set value, burner control unit

### Burner switching differential Parameters HG01



Factory setting: 10K  
Setting range: 5 to 20K

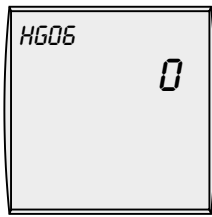
The burner switching differential regulates the burner temperature within a set range by switching the burner ON and OFF.

The switching differential between burner stage 1 and burner stage 2 is always half the switching differential.

See also the parameter HG31 diagram.



### Pump operating mode Parameters HG06



Factory setting: 0  
Setting range: 0 / 1 / 2

### Pump operating mode 0:

#### Heating circuit pump for heating systems without cascade control and without low loss header

The heating circuit pump runs constantly when there is a heat demand. The heating circuit pump will be switched OFF during cylinder heating if DHW priority has been selected.

#### Pumping operation type 1 (HG13 = 1; without header sensor at the E1 inlet): No direct heating circuit is connected to the oil condensing boiler

All settings for the heating circuit are hidden.

Heating circuits are controlled via a separate mixing module (accessories).

For cascade installations, and in conjunction with a cascade module, the heating circuit pump becomes a supply pump

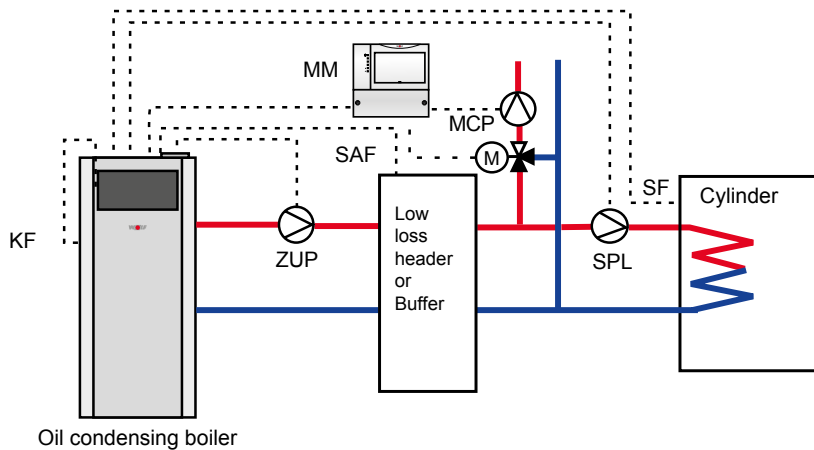
#### Pumping operating type 1 (HG13 = 7; with header sensor at the E1 inlet): Feed pump for heating systems with low loss header or buffer

Heating circuit pump becomes the feed pump.

The header sensor affects the heating operation as well as cylinder heating. The feed pump runs only when there is a burner demand. Pump run-on in accordance with parameter HG07.

Hydraulic scheme:

- ZUP = Feed pump
- SPL = Cylinder charging pump
- SF = Cylinder sensor
- SAF = Header sensor
- KF = Boiler sensor
- MCP = Mixer circuit pump
- M = Mixer motor
- MM = Mixer module.



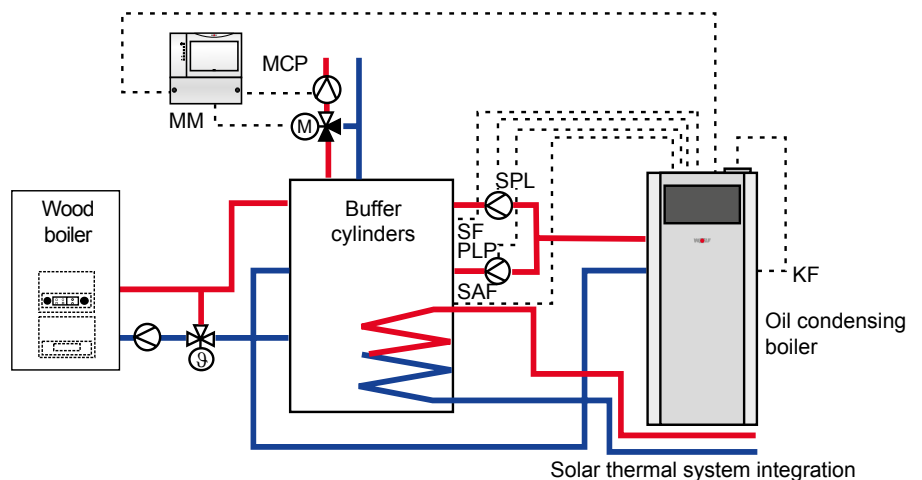
#### Pumping operating type 2 (HG13 = 7; with header sensor at the E1 inlet): Buffer primary pump for BSP cylinder

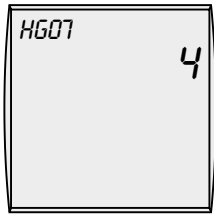
The heating circuit pump becomes the buffer primary pump.

The manifold sensor (buffer) only affects heating operation. In case of cylinder heating, the reference temperature is provided by the internal boiler sensor. In heating mode, the buffer primary pump runs only when there is a burner demand. Pump run-on in accordance with parameter HG07.

Hydraulic scheme:

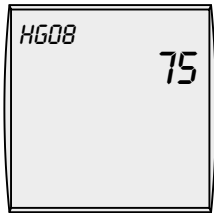
- SPL = Cylinder charging pump
- PLP = Buffer primary pump
- SF = Cylinder sensor
- SAF = Header sensor
- KF = Boiler sensor
- MCP = Mixer circuit pump
- M = Mixer motor
- MM = Mixer module.



**Boiler circuit pump run-on time  
Parameters HG07**

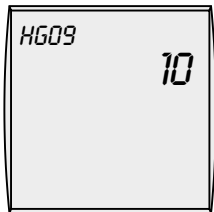
Factory setting: 4 min  
Setting range: 0 to 30 min

Subject to there being no heat demand from the heating circuit, the boiler circuit pump will run on in accordance with the set time, to prevent a boiler safety shutdown at high temperatures.

**Maximum limit Boiler circuit  
TV-max.****Parameters HG08**

Factory setting: 75°C  
Setting range: 40 to 90°C

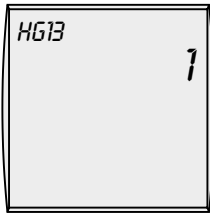
This function sets an upper limit on the boiler water temperature in heating mode and the burner shuts down. This parameter has no function during cylinder heating, and the boiler water temperature may also be higher during this time. "Reheating effects" can result in the temperature being slightly exceeded.

**Burner cycle block  
Parameters HG09**

Factory setting: 10 min  
Setting range: 1 to 30 min

Each time the burner is shut down in heating mode, it will be disabled for the duration of the burner cycle block.  
The burner cycle block is reset by turning the ON/OFF switch off and on or by briefly pressing the reset button.

**Programmable  
Input E1  
Parameters HG13**



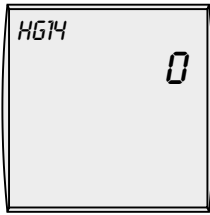
Factory setting: 1  
Setting range: 1 to 10

The functions of input E1 can only be scanned and adjusted with Wolf control accessories with eBUS capability.

The following functions can be allocated to input E1:

	Meaning
1	<b>Room thermostat</b> Closed contact is a prerequisite for enabling the burner in heating mode No function for DHW mode No function for emissions test mode and frost protection, no error message Open contact blocks the enabling of the heating and the heating circuit pump (pump run-on)
2	<b>Maximum thermostat/system pressure switch</b> Closed contact is a prerequisite for enabling the burner in heating and DHW mode When the contact is opened, the burner switches off and the pump run-on begins - no error message. Applies to all pumps. When the mains power is on and the contact is open, there is only a pump kick, no run-on
5	<b>Flue gas/ventilation air damper</b> Function monitoring of the flue gas/ventilation air damper with floating contact, Closed contact is a prerequisite for enabling the fan and burner in heating, DHW, cascade and emissions test mode. Output A1 <b>must</b> be programmed for flue gas/ventilation air damper function. If output A1 is controlled and does not close input E1 within two minutes, fault code 8 is issued. If output A1 is not controlled, input E1 must also open within two minutes. Otherwise FC8 is generated. With FC8, the fan is controlled with 65% of speed stage 1.
6	<b>DHW circulation remote control</b> After the DHW circulation button is activated, output A1 is switched on for 5 minutes, if output A1 is programmed as DHW circulation pump (A1 = 13)
7	<b>Header sensor</b> A header sensor (5K-NTC) is connected at E1; observe parameter HG 06
8	<b>Burner block</b> Operation without burner Closed contact, burner blocked Heating circuit pump and cylinder charging pump operate in standard mode In emissions test mode and frost protection, the burner is enabled Open contact enables the burner again
10	<b>External burner demand</b> Closed contact, TKset is set to TKmax -5 K Demand also functions in standby; cycle block active (Control of output A1 when parameter output A1 = 14)
	<b>0, 3, 4, 9, 11 have no function</b>

### Programmable Output A1 Parameters HG14



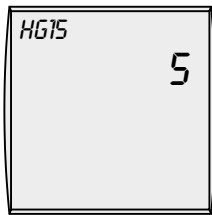
Factory setting: 0  
Setting range: 0 to 14

The functions of output A1 can only be scanned and adjusted with Wolf control accessories with eBUS capability.

The following functions can be allocated to output A1:

	Meaning
<b>1</b>	<b>DHW circulation pump 100%</b> Output A1 is switched by control accessories (BM) if DHW circulation has been enabled. Output A1 is constantly switched if no accessory controller is installed.
<b>2</b>	<b>DHW circulation pump 50%</b> Output A1 is switched by control accessories (BM) in cycles if DHW circulation has been enabled. 5 minutes ON and 5 minutes OFF. Output A1 constantly cycles in 5 minute cycles when no accessory controller is installed.
<b>3</b>	<b>DHW circulation pump 20%</b> Output A1 is switched by control accessories (BM) in cycles if DHW circulation has been enabled. 2 minutes ON and 8 minutes OFF. Output A1 cycles constantly when no accessory controller is installed.
<b>4</b>	<b>Alarm output</b> Output A1 is switched 4 minutes after a fault.
<b>5</b>	<b>Flame detector</b> Output A1 is switched after a flame has been detected.
<b>7</b>	<b>Flue gas/ventilation air damper</b> Output A1 is always controlled before the fan starts. The feedback is checked via input E1. If input E1 does not close, the fan and burner will not start, and after two minutes FC8 will be generated. The flue gas/ventilation air damper is controlled until the fan starts. If input E1 is interrupted during burner operation, the burner shuts down. In case of a fault, e.g. pressure switch, flame failure during operation etc., the flue gas damper is closed after the flushing time has expired. Input E1 must be programmed as flue gas/ventilation air damper. With FC8, the fan is controlled with 65% of speed stage 1.
<b>8</b>	<b>External ventilation</b> Output A1 is controlled inverted to the burner. Switching OFF external ventilation (e.g. extractor fan) during burner operation is only required, if the boiler is operated as open flue system.
<b>9</b>	<b>Oil shut-off valve</b> Output A1 switches simultaneously to the oil pump
<b>11</b>	<b>External pump</b> Output A1 switches simultaneously with the heating circuit pump. Use with, for example, system separation.
<b>12</b>	<b>Diverter valve</b> Synchronous control with input E1 (E1 = 8, burner blocking)
<b>13</b>	<b>Circulation pump</b> Circulation pump is turned ON for 5 min. if input E1 (E1 = 6) is programmed as DHW circulation remote control and input E1 key is closed
<b>14</b>	<b>Pump with external burner demand</b> Simultaneous control with input E1 (E1 = 10, ext. burner demand)
	<b>0, 6, 10, 15 have no function</b>

### Cylinder hysteresis Parameters HG15



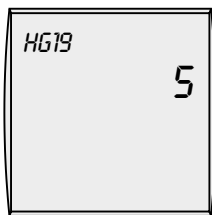
Factory setting: 5 K  
Setting range: 1 to 30 K

The cylinder hysteresis regulates the start point for cylinder heating. The higher the setting, the lower the start point for cylinder heating.

Example: Set cylinder temperature 60 °C  
Cylinder hysteresis 5 K

Cylinder heating commences at 55 °C and ends at 60 °C.

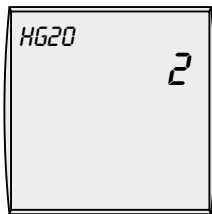
### Run-on time, cylinder charging pump Parameter HG 19



Factory setting: 5 min  
Setting range: 0 to 10 min

After completing cylinder heating in summer mode (the cylinder has reached the set temperature), the cylinder loading pump will run on up to the max. set run-on time. The cylinder primary pump will switch OFF prematurely if, during the run-on time, the boiler water temperature cools down to a differential between boiler and cylinder water temperature of 5 K, to prevent the boiler cooling down too severely. In winter mode, the cylinder loading pump runs on for a fixed time of 2 minutes after successful cylinder heating (independently of parameter HG19).

### max. cylinder heating time Parameter HG20

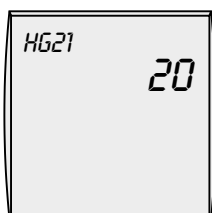


Factory setting: 2 hrs  
Setting range: 0 to 5 hrs

Cylinder heating commences as soon as the cylinder temperature sensor calls for heat. The heating circuit pumps would be constantly switched off if the boiler was undersized, the cylinder was scaled up or if DHW was constantly drawn off during DHW priority mode. The accommodation would then cool down significantly. To limit this effect, it is possible to specify a max. cylinder heating time. If the set maximum cylinder heating time has expired, error message FC52 appears on the BM module. The control unit reverts to heating mode and cycles in the selected rhythm (HG20) between heating and cylinder heating mode, regardless of whether the cylinder has reached its set temperature or not. This function remains enabled even in parallel mode (parameter A10 set to 1). It is only disabled if it is set to 0.

Set this parameter to 0 in heating systems with a high DHW consumption, e.g. hotels, sports facilities etc.

### Minimum boiler water temperature TK-min. Parameters HG21

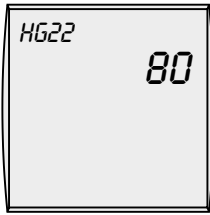


Factory setting: 20 °C  
Setting range: 20 to 90°C

The control unit is equipped with an electronic boiler temperature controller which has an adjustable min. start temperature. The burner is switched on subject to the cycle block if this temperature is not achieved when heat is demanded. If there is no heat demand, the minimum boiler water temperature TK-min may also be undershot.

### Maximum boiler water temperature TK-max.

#### Parameters HG22



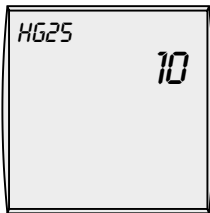
Factory setting: 80 °C  
Setting range: 50 to 90°C

The control unit is equipped with an electronic boiler temperature controller which has an adjustable max. off temperature (max. boiler temperature). The burner is switched off if this temperature is exceeded. The burner will restart when the boiler water temperature has fallen by as much as the burner switching differential.

If the boiler water temperature exceeds 95 °C (possible effect of reheating), the boiler circuit pump and cylinder primary pump (if installed) will also be started in "summer mode". These pumps are stopped again when the boiler water temperature falls below 92 °C. This prevents the boiler overheating.

### Excess boiler water temperature during cylinder heating

#### Parameters HG25

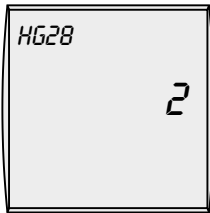


Factory setting: 10 K  
Setting range: 0 to 40 K

The excess temperature differential between the cylinder temperature and the boiler water temperature during cylinder heating is selected with parameter HG25. The boiler water temperature continues to be limited by the maximum boiler water temperature (parameter HG22). This ensures that, even in spring and autumn, the boiler water temperature is higher than the cylinder temperature, thereby ensuring short heating times.

### Burner operating mode

#### Parameter HG28



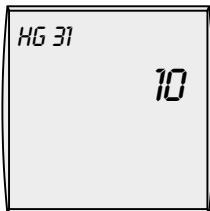
Factory setting: 2  
Setting range: 1 to 5

You can select any burner operating mode. Control unit is set at the factory for two-stage burner operation.

- Setting "1": single stage burner operation, stage 1
- Setting "2": two-stage burner operation, stages 1 + 2
- Setting "3": Burner is single stage for cylinder heating  
Burner is double stage for heating mode
- Setting "4": Burner is single stage for heating mode  
Burner is double stage for cylinder heating
- Setting "5": Burner is double stage for heating mode, anti-cycling according to the parameter HG09  
Burner is double stage for cylinder heating. For cylinder heating, the burner is locked for 4 min after every burner shutdown.

### Blocking time burner stage 2

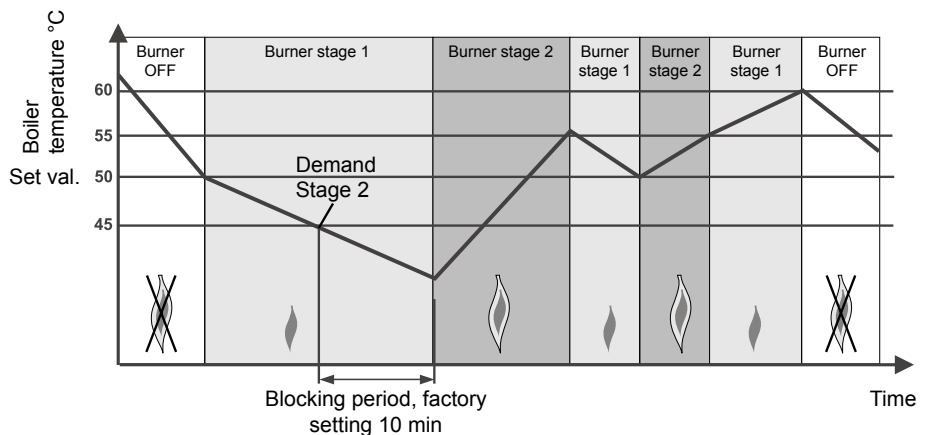
#### Parameter HG31



Factory setting: 10 min  
Setting range: 0 to 40 min

Burner stage 2 is started when there is stage 2 demand and after the blocking period has expired (factory setting 10 min.). It is stopped once a temperature of approx. 5 °C above the set value has been reached. Once the stage 2 has been enabled, it will be started as soon as the set temperature has been reached or is no longer achieved. Enabling is removed when burner stage 1 is shut down.

During cylinder heating and emissions test mode, this parameter is disabled.



## Specification

Cascade type		2 x COB-29	3 x COB-29	4 x COB-29	2 x COB-40	3 x COB-40	4 x COB-40
Rated heating output at 80/60 °C	kW	56,4	84,6	112,8	76,0	114,0	152,0
Rated heating output at 50/30 °C	kW	59,2	88,8	118,4	80,0	120,0	160,0
Rated heat input	kW	58,0	87,0	116,0	77,6	116,4	155,2
Lowest output at 80/60 °C stage 1	kW	18,5			25,3		
Lowest heating output at 50/30 °C stage 1	kW	19,6			26,8		
Lowest output	kW	19,0			26,0		

## General

These oil condensing boilers have control PCBs with functions that are optimally matched to the digital controller type KM for cascade control. Up to four COB-29 or COB-40 oil condensing boilers (with the same output) with an output range of 18.5 kW to 112.8 kW (cascade COB-29) or 25.3 kW to 152.0 kW (cascade COB-40) can be linked together to form a single cascade. Subject to load, this digital cascade controller KM can control the header flow, a mixer circuit and a DHW cylinder circuit. The digital controller type MM from the WOLF range of control accessories can be connected to regulate an additional mixer circuit and radiator circuit. Furthermore, a BM can be used in each case as a remote control.

For a detailed description, see also the installation instructions for the individual modules.

## Setting the eBus address in cascade mode (see also installation instructions for KM module)

The eBUS address is set by pressing the reset button for at least 5 seconds after the appliance has been switched on. After 5 seconds, the corresponding flashing code appears (in accordance with the table) at the illuminated signal ring. Select the corresponding eBUS address with the DHW temperature rotary selector. Your selection of the required eBUS address is saved by releasing the reset button. No address can be allocated more than once.

Boiler in cascade mode	eBus address	Position Rotary selector, DHW temperature selection	Illuminated ring display
Boiler 1	1*	1*	flashing red
Boiler 2	2	2	flashing yellow
Boiler 3	3	3	flashing yellow/red
Boiler 4	4	4	flashing yellow/ green

\*Factory setting (individual boiler without cascade mode)

### Directly heated DHW cylinder

A DHW cylinder is generally connected downstream of the system separation or via a low loss header.

Cylinder heating is controlled via the cascade controller type KM, to which a cylinder primary pump and the electronic cylinder sensor are connected.

### Heating circuit

The following types of connections shall be selected to ensure the heating water flow rate through every condensing boiler is as even as possible:

1. For precise hydronic balancing, a line regulating valve can be fitted in the supply line to every appliance.
2. Design the flow and return lines with the same length for the flow and return according to the Tichelmann system, to ensure the pressure drop in every line is equally high.

### Low loss header

It must not be possible for the on-site heating circuit pumps or primary pumps to influence the function of the condensing boilers. A low loss header should therefore be installed upstream of the heating water circuit or DHW cylinder circuit. Furthermore, ensure that the heating water flow rate through the condensing boilers is set lower than that through the subsequent heating circuit. The flow rate should therefore be set upstream of the low loss header via a line regulating valve or butterfly valve.

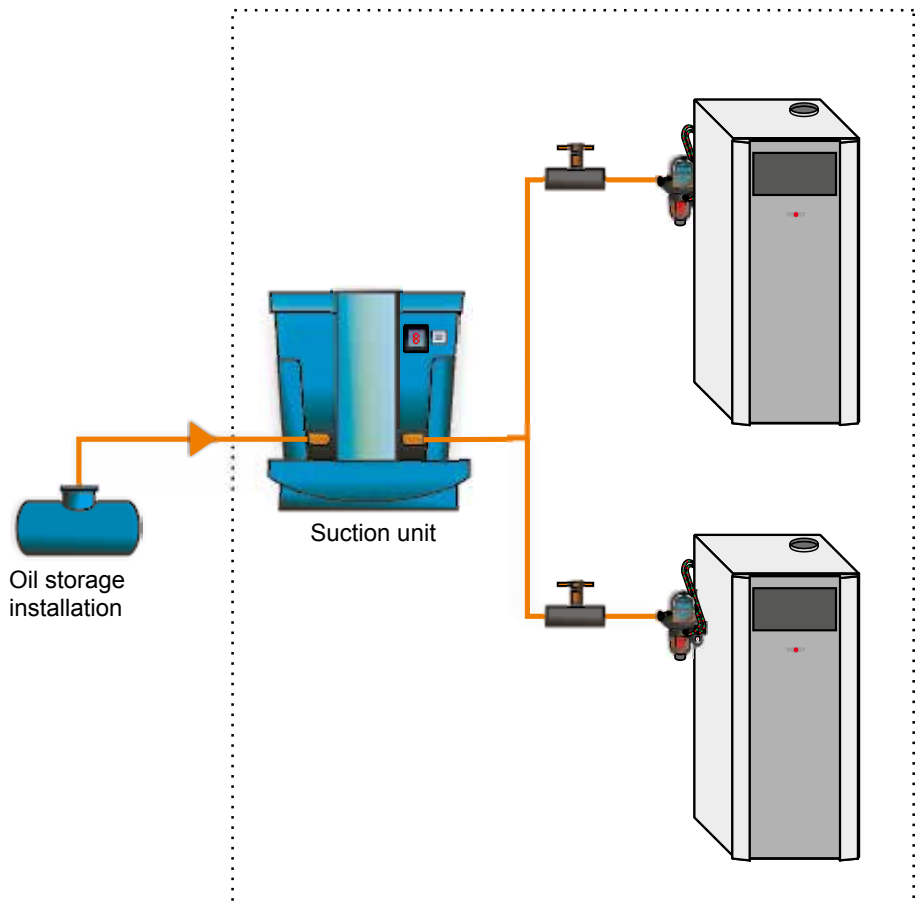
### Hydraulic separation

Instead of the low loss header, a heat exchanger can be installed. If pipes are used which are not impermeable to oxygen, this is a requirement in any case.

### Oil connection

Each oil condensing boiler shall be provided with a suitable oil supply.

If the oil supply is only possible from one oil storage installation, this supply must be arranged centrally via a suction unit. The suction unit shall be installed as close to the boiler cascade as possible. The oil lines shall be sized in accordance with TRÖI.





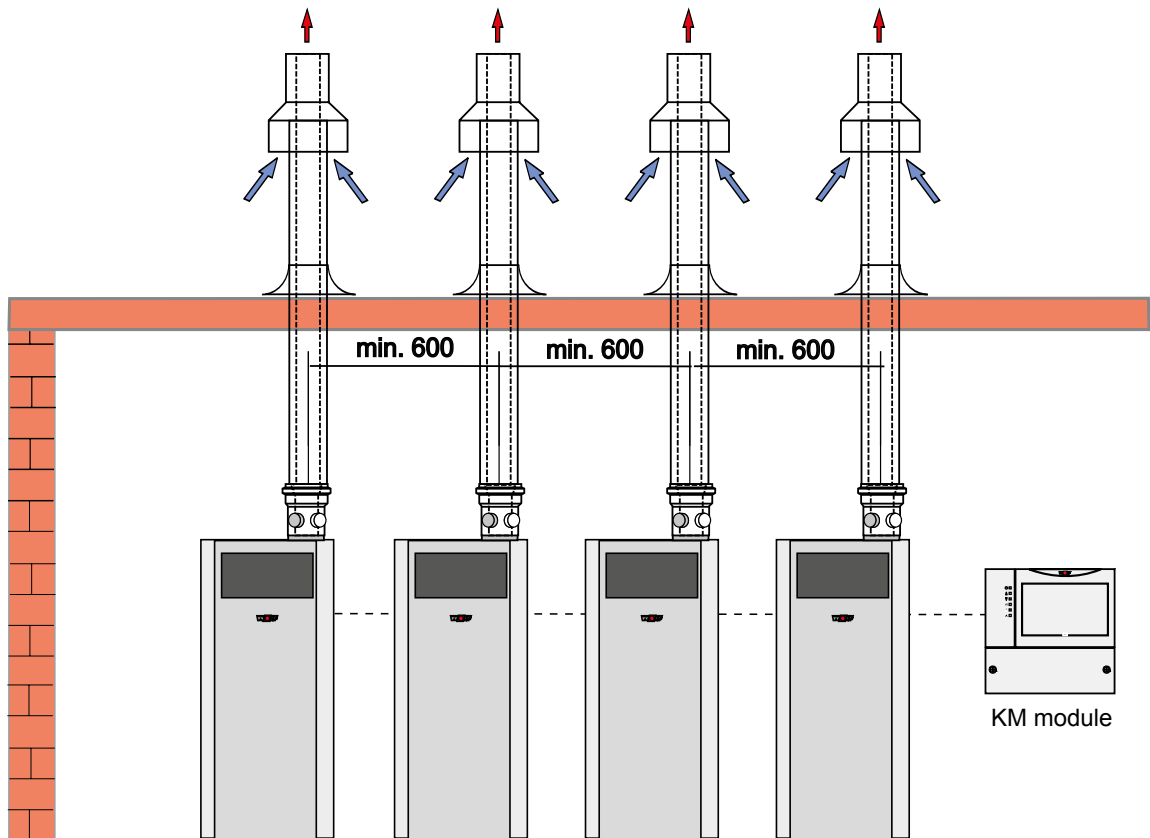
## Air/flue gas routing

Oil condensing boilers with a separate, concentric, balanced flue outlet (DN 80/125 or DN 110/160) above the roof, type C33 x, may only be installed in attics, or in rooms where the ceiling also forms the roof, or where only the roof construction is located above the ceiling.

If the pipework for the combustion air supply and flue gas routing crosses different floors in the building, route the pipes outside the boiler room inside a duct with a fire resistance of at least 90 minutes, and in living spaces of low height with a resistance of at least 30 minutes.

**Note** To prevent flue gas being drawn back through adjacent roof outlets where several flue outlets are arranged next to each other and boiler faults linked to this, arrange the outlets at approximately the same height and with at least 600 mm between them.

The maximum permissible straight length for concentric balanced flue routing must not exceed 16 m with an internal diameter DN 80/125, or 21 m with DN 110/160. The calculated length of the balanced flue routing comprises the straight pipe length and the length of the pipe bends. In this calculation, an 87° bend is calculated as being 1.5 m and a 45° bend as being 1 m.



Cascade control with separate, vertical, concentric balanced flue routing, type C33x.

## Flue cascade

Flue cascades are only suitable in balanced flue operation. They must be designed to EN 13984-1.



To prevent flue gas escaping, a flue cascade is only permitted with a tested flue gas damper. Escaping waste gas may lead to asphyxiation or severe to life-threatening poisoning.

## Flue gas routing with header

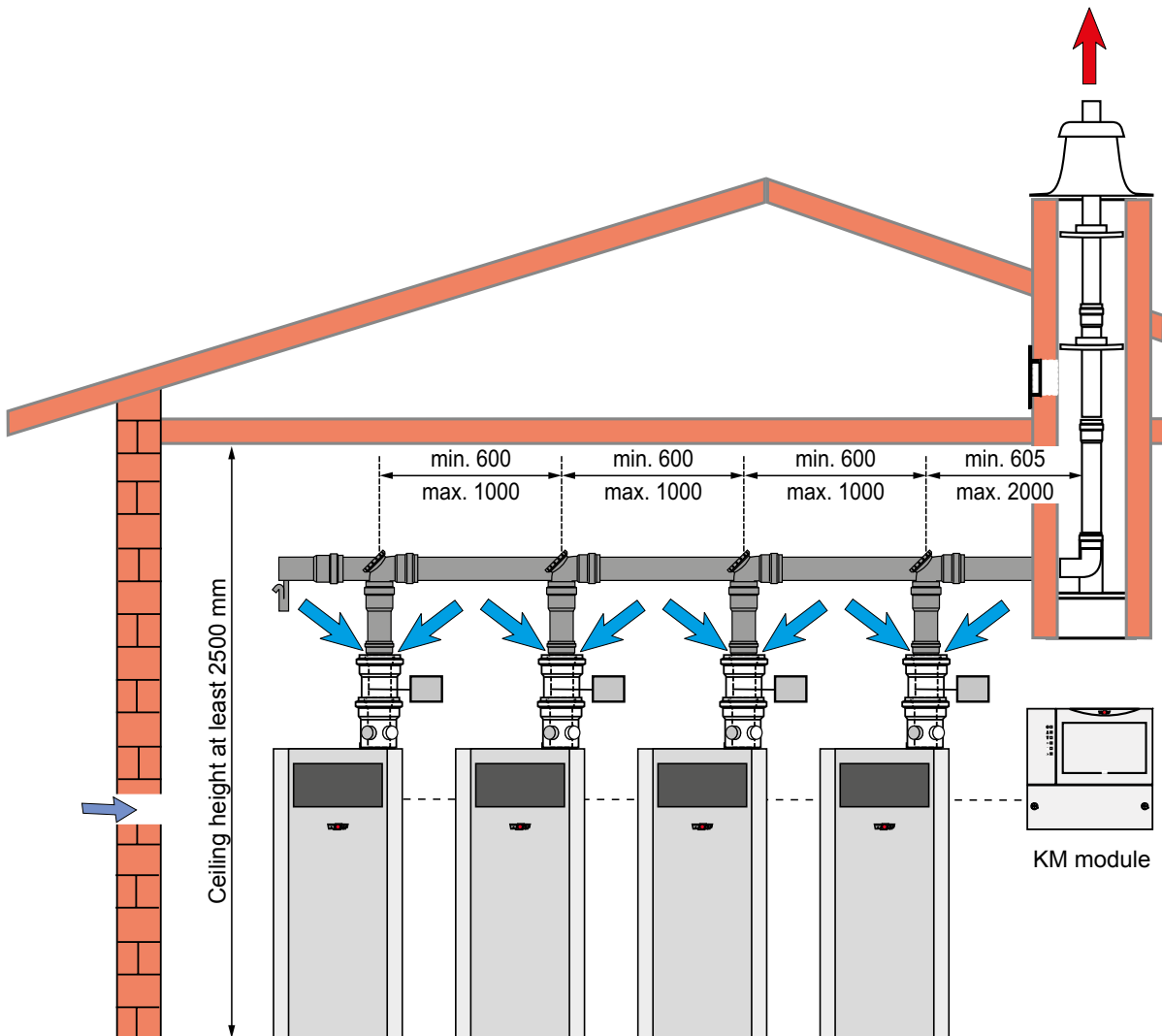
Oil condensing boilers with common flue routing - open flue operation in installation type B23.

For open flue operation, there **must** be an aperture in the boiler room that opens to the outside and has a clear cross-section of at least 150 cm<sup>2</sup>.

Where necessary, adapt the installation examples to the relevant building regulations and requirements in your country/region. Discuss any questions relating to the installation, particularly of **inspection covers and ventilation apertures (ventilation generally required above 50 kW output)** with your local heating engineer.

Number	2 x COB-29	2 x COB-29	3 x COB-29	4 x COB-29	2 x COB-40	3 x COB-40	4 x COB-40
Installation	Type B23						
Flue internal diameter	DN 110	DN160	DN160	DN160	DN160	DN160	DN160
Total flue gas mass flow rate g/s	26,6	26,6	40,0	53,3	35,0	52,5	70,0
max. Flue gas temperature °C	76				83		
Max. effective building height m	30						

The effective heights specified are only valid on the condition that the length of the flue between the individual appliances and downstream of the last appliance does not exceed 2 m. 325 m was assumed as the geodetic height. If the conditions at the installation site are different, an individual calculation is required.



Cascade control with header

The maximum horizontal length of the flue gas header is 1.0 between the devices and 2.0 m behind the last device. In addition to the boiler connection bend, a maximum of two 87° diverters may be installed.

### **Installation in an existing chimney/duct**

Minimum cross-section of the duct: With a round duct, the clear distance from the flue to the duct wall must be at least 3 cm and with an angular duct, at least 2 cm.

The flues must be installed in ducts and channels in such a way that it is possible to inspect and, if necessary, clean the ventilated cross-section. Close cleaning apertures in ducts with chimney cleaning covers which have been assigned a test mark.

The distance from the cleaning and inspection aperture in the duct/channel to the front edge of the flue can be twice the diameter of the flue, up to a maximum of 35 cm, as long as cleaning and inspection do not take place at the outlet.

Flues in shafts should be designed at the outlet in such a way that no precipitation can enter the space between the flue and shaft, and the secondary ventilation can escape freely.

Removable covers must be able to be removed without tools and be secured to prevent them falling.

Retaining straps and spacers must be designed in such a way that it is possible to inspect and, if necessary, clean the free cross-section of the shaft.

Provide sufficient cleaning and inspection apertures.

## Installing the flue

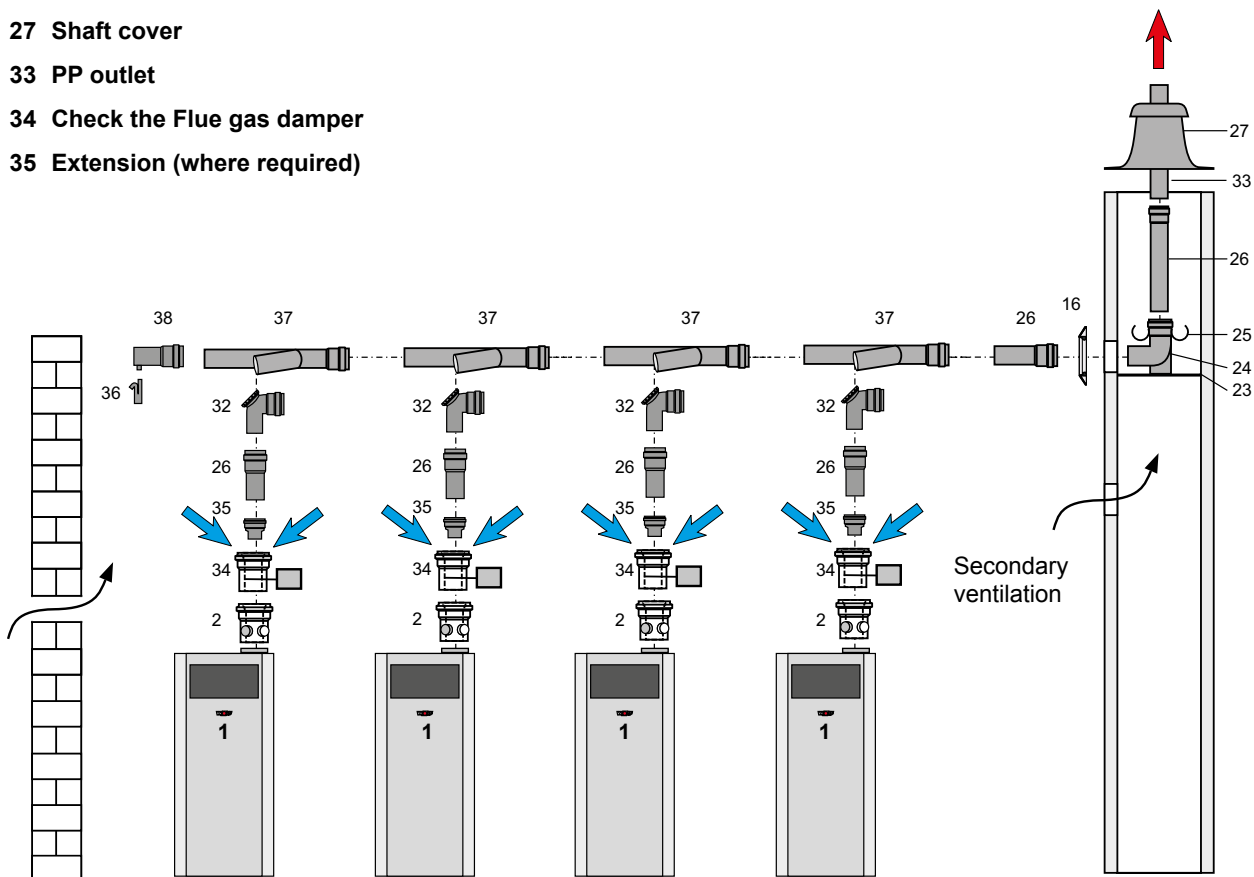
In the vertical part of the flue, a cleaning and inspection aperture is required immediately above or below the flue diverter if the distance from the centre of the cleaning and inspection aperture in the horizontal part of the flue to the vertical axis of the flue is greater than 30 cm.

The distance can be up to 1 m if the inspection aperture in the horizontal part of the flue is arranged on the front and if there are no diverters in the flue from this cleaning and inspection aperture to the vertical part.

In the upper part of the flue arranged inside the building (< 5 m), a cleaning and inspection aperture is required if cleaning or inspection cannot be carried out from the roof.

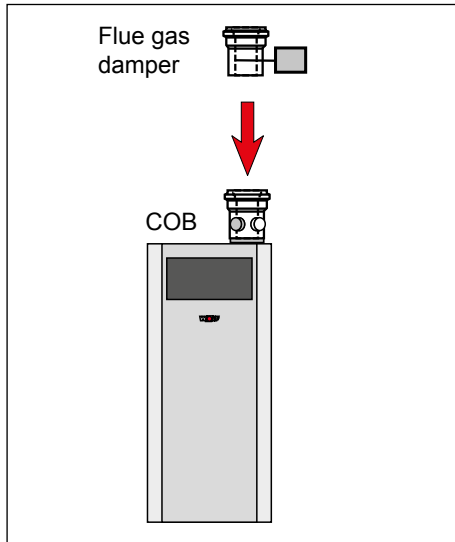
Before commissioning the combustion system, have the safe usability of the flue system confirmed by the local flue gas inspector [in Germany; check local regulations].

- 1 Oil condensing boiler
- 2 Connection adaptor with test nipple for air and flue gas (included in COB standard delivery)
- 16 Pipe collar
- 23 support rail
- 24 87° support bend
- 25 Spacer
- 26 PP pipe
- 27 Shaft cover
- 33 PP outlet
- 34 Check the Flue gas damper
- 35 Extension (where required)
- 36 Trap
- 37 PP header
- 38 End piece with inspection aperture and condensate drain



Example of an open flue cascade design according to type B23

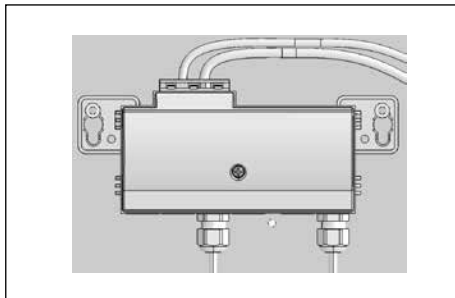
### Flue gas damper installation information



Mounting the flue gas damper

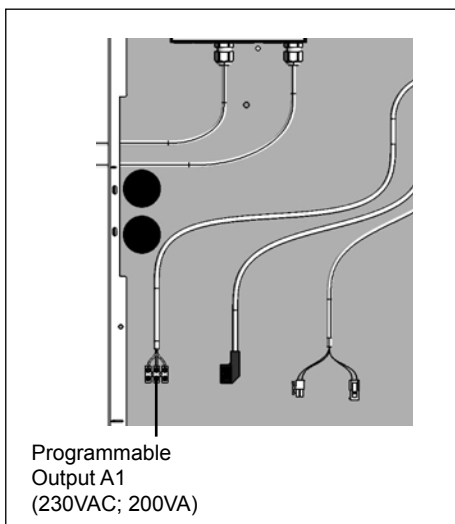
- Push flue gas damper as far as it will go onto connection adaptor (with test nipple) on the boiler.
- Push the flue as far as it will go onto the flue gas damper
- Correctly route the limit switch cable and motor cable from the flue gas damper to the terminal box and to the cable (programmable output A1).

### Electrical connection installation information



Terminal box

In the delivered condition, the terminal box is fitted to the back panel of the boiler.  
If required, the terminal box can be mounted on the wall to the right or left of the boiler, or above it.  
The control and safety devices are fully wired and tested.



COB back view

### Installation information on the E1 input electrical connection A1 output for flue gas damper



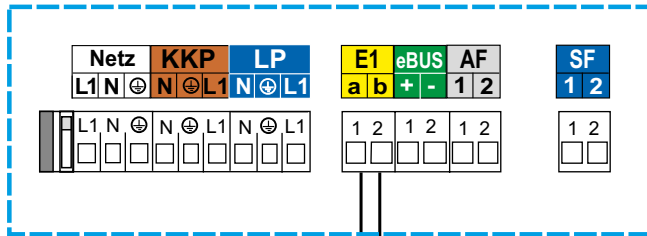
**Never touch electrical components or contacts when the ON/OFF switch is in the ON position. There is a danger of electrocution, resulting in a risk to health or death. The main terminals are 'live', even when the ON/OFF switch is in the OFF position.**

- Isolate the system from the power supply before opening.
- Unclip the terminal box from the holder.
- Open the terminal box.
- Screw the strain relief into the holes provided.
- Strip approx. 70 mm off the power cable from the limit switch.
- Push the cable through the strain relief and tighten the strain relief.
- Connect the wires from the limit switch to input E1 (see the chapter "Wiring diagram cascade operation").
- Connect motor cable from the flue gas damper via an on-site junction box with programmable output A1 (see the chapter "Wiring diagram cascade operation")
- Fit the cover.

Continue with the chapters "Flue gas damper tightness test" and "Commissioning"

## Flue gas damper wiring diagram

COB terminal box

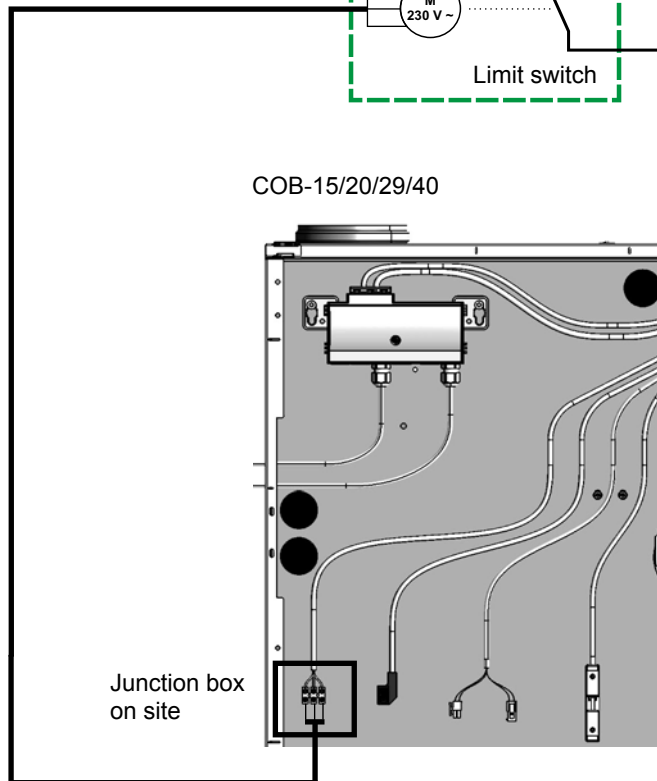


Note

The contractor parameter HG13 (E1 input) must be set to 5 and HG14 (A1 output) must be set to 7!

Otherwise, the boilers do not change into heating mode.

Power supply (230 VAC; 200 VA)



Note

Flue gas damper limit switch must be potential-free. Otherwise, the COB control unit is destroyed.

COB-15/20/29/40

Junction box on site

Programmable output A1 (230VAC; 200VA)

### Tightness test on connections to adjacent appliances



As part of the annual heating appliance inspection, the cascade damper on overpressure boiler systems must be tested for tightness, to ensure no flue gas can escape into the boiler room. Flue gas can lead to asphyxiation or severe to life-threatening poisoning.

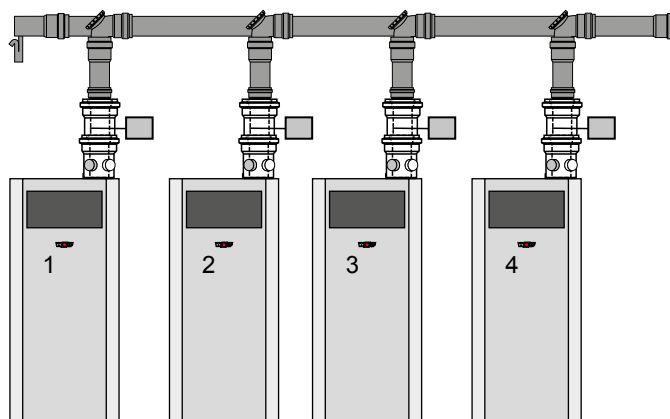
The check must be carried out with the appliance closed.

### Tightness test on connections to adjacent appliances

- Set the program selector (l.h. rotary selector) to "Standby" on the BM programming unit.
- Then turn the first COB to position 1 "Emissions test" by means of the heating water temperature selector → COB starts.
- Operate the first COB for at least 5 minutes.
- Check the CO<sub>2</sub> content in the air connectors on all other appliances:
- If the CO<sub>2</sub> value exceeds 0.2% within 15 minutes, the leak must be found and remedied.
- Subsequently close all test apertures again. When doing so, ensure the caps are seated firmly.

### Testing the first COB for tightness

- Turn the temperature selector for heating water on the first COB to its centre position → COB shuts down.
- Then turn the second COB to position 1 "Emissions test" by means of the heating water temperature selector → COB starts.
- Operate the second COB for at least 5 minutes.
- Carry out the CO<sub>2</sub> test on the first COB.
- If the CO<sub>2</sub> value exceeds 0.2% within 15 minutes, the leak must be found and remedied.
- Subsequently close all test apertures again. When doing so, ensure the caps are seated firmly.

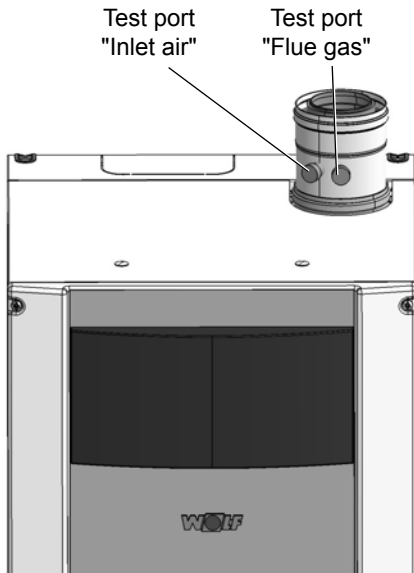


- |    |     |     |     |     |
|----|-----|-----|-----|-----|
| 1. | ON  | OFF | OFF | OFF |
| 2. | OFF | ON  | OFF | OFF |

If no control accessory is installed, see chapter on "Commissioning without Wolf control accessories (BM)".

## Commissioning

Only qualified personnel must carry out the commissioning and operation of the boiler and instruct the user!



**Note** Check the boiler and system for water tightness. If water tightness cannot be ensured, there is a risk of leaking water causing water damage. Normal operating pressure when system is cold 1.5 - 2.0 bar.

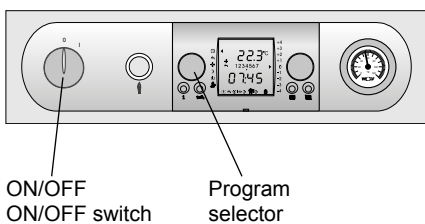
**Note** Check the fuel level in the oil tank. Commissioning without oil may damage the oil pump, due to dry running.

Check the system for oil leaks. Prevent oil leaks. If oil tightness is not assured, there is a risk to health from drinking water which has been contaminated with oil

Check the water level in the trap. Operating the appliance with an empty trap presents a risk of poisoning due to flue gases escaping.

- Check that all flue gas accessories have been correctly installed. Operating the appliance with a leaking flue gas system presents a risk of poisoning or asphyxiation due to the escape of flue gases.

- Fit casing.
- Open the shut-off valves in the flow and return.
- Open oil shut-off valves (tank, oil line, filter).
- Switch on the heating emergency stop switch.
- Switch on the system ON/OFF switch on the control unit.
- Remove cap from l.h. test port (inlet air).
- Insert test probe 2 cm.
- Turn the program selector switch on the BM module to "Emissions test" (Illuminated signal ring flashes yellow).
- After a pre-purge time of approx. 25 seconds, the pump starts up and opens the solenoid valve. The drawn fuel oil reaches the nozzle and a flame builds.
- The burner enters a fault state if, during commissioning, the oil pump does not supply sufficient oil during the pre-purge time. Repeat the burner start by pressing reset.
- Measure temperature and CO<sub>2</sub> in the inlet air and enter the values in the commissioning report (see the commissioning report chapter).
- The flue is not gas tight if the CO<sub>2</sub> content > 0.2%; rectify the leak.
- Terminate the emissions test mode by turning the program selector switch on the programming unit to the required operating mode.
- If emissions test mode is not reset manually, the appliance switches back to the original operating mode automatically after 15 minutes.
- Remove the test probe and close the test port. Ensure the cap is seated firmly.






## CO<sub>2</sub> adjustment by matching the pipe lengths

### Adjusting the CO<sub>2</sub> value in the upper load range (stage 2) (emissions test mode)

With contractor parameter HG 00 (see chapter 19 "Contractor level parameters"), the appliances can be matched to the flue system by changing the speed for both stages and therefore the CO<sub>2</sub> value can be changed.

- Remove front and top casing.
- Remove the cap from the r.h. "flue gas" test port.
- Insert the test probe of the CO<sub>2</sub> measuring instrument into the "flue gas" test port (approx. 70 mm).
- Turn the program selector switch on the BM module to "Emissions test" . (Illuminated signal ring as status indicator flashes yellow.)
- Measure the CO<sub>2</sub> content and compare it against the values given in the stage 2 table below.
- If required, alter the CO<sub>2</sub> content with parameter HG00.

#### HG 00 CO<sub>2</sub> adjustments

Factory setting: 3



### CO<sub>2</sub> check/setting in the lower load (stage 1)

- Modifying the parameter HG00 has also adjusted the speed for stage 1. For checking purposes, the boiler must be set to stage 1.
- Switch HG28 burner operating mode from 2(two-stage) to 1(single stage).
- Measure the CO<sub>2</sub> content and compare it against the values given in the stage 1 table below.

Appliance open		COB-15	COB-20	COB-29	COB-40
Set CO <sub>2</sub> value	Stage 2	12,7 ± 0,3%			
	Stage 1	12,7 ± 0,3%			
O <sub>2</sub> set value	Stage 2	3,8 ± 0,4%			
	Stage 1	3,8 ± 0,4%			

- If the value lies outside of the set value, the CO<sub>2</sub>-value must be set via the pump pressure (see Commissioning without Wolf control accessories).
- Reset HG28 burner operating mode from 1 to 2.

## C) Checking the CO<sub>2</sub> adjustment

- After completing the work, refit the casing cover and check the CO<sub>2</sub> value with the boiler closed.
- When correctly set, the boiler should not exceed the maximum CO<sub>2</sub> values in accordance with the table below.

Appliance closed		COB-15	COB-20	COB-29	COB-40
CO <sub>2</sub> max	Stage 2	13,5 %			
	Stage 1	13,5 %			
O <sub>2</sub> min.	Stage 2	2,7 %			
	Stage 1	2,7 %			

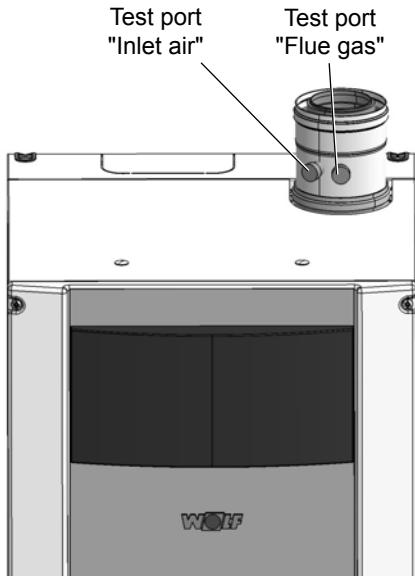
- If the CO<sub>2</sub> value increases too greatly, the balanced flue must be checked.
- Enter flue gas values such as CO<sub>2</sub> content, flue gas CO content and soot value in the commissioning report (see the commissioning report chapter).
- Terminate the emissions test mode by turning the program selector switch on the BM programming module to the required operating mode. If emissions test mode is not reset manually, the appliance switches back to the original operating mode automatically after 15 minutes.
- Remove the test probe and close the test port. Ensure the cap is seated firmly.

## Completing the adjustments

- Check the control parameters and match them to the system if necessary.
- Check the condensate drain.
- Instruct the customer in the operation of the device, with the aid of the operating and installation instructions.
- Complete the commissioning report(see the commissioning report chapter) and hand over the instructions to the customer.
- Instruct the customer about the need for annual servicing.
- Instruct the customer about energy saving options.
- Refer your customer to section "Information regarding energy efficient operation" in the operating instructions.

## Commissioning

Only qualified personnel must carry out the commissioning and operation of the boiler and instruct the user!



**Note** Check the boiler and system for water tightness. If water tightness cannot be ensured, there is a risk of leaking water causing water damage. Normal operating pressure when system is cold 1.5 - 2.0 bar.

**Note** Check the oil level in the tank. Commissioning without oil may damage the oil pump, due to dry running.



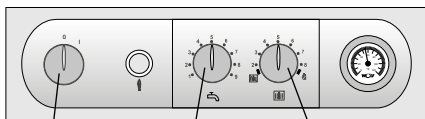
Check the system for oil leaks. Prevent oil leaks. If oil tightness is not assured, there is a risk to health from drinking water which has been contaminated with oil



Check the water level in the trap. Operating the appliance with an empty trap presents a risk of poisoning due to flue gases escaping.




- Check that all flue gas accessories have been correctly installed. Operating the appliance with a leaking flue gas system presents a risk of poisoning or asphyxiation due to the escape of flue gases.



ON/OFF  
ON/OFF  
switch

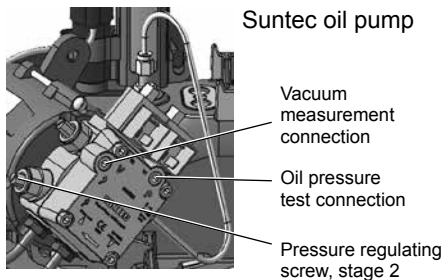
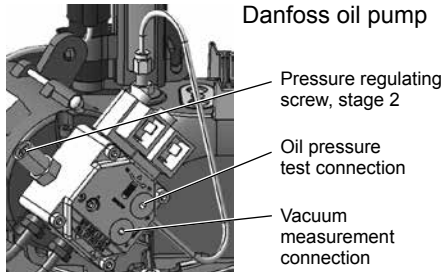
Temperature  
DHW  
selector

Temperature  
Heating water  
selector


- Fit casing.
- Open the shut-off valves in the flow and return.
- Open oil shut-off valves (tank, oil line, filter).
- Switch on the heating emergency stop switch.
- Switch on the system ON/OFF switch on the control unit.
- Remove cap from l.h. test port (inlet air).
- Insert test probe 2 cm.
- Turn DHW temperature selector to 1.
- Turn heating water temperature selector to "Emissions test"   
(illuminated signal ring flashes yellow)
- After a pre-purge time of approx. 25 sec., the pump starts up and opens the solenoid valve. The drawn fuel oil reaches the nozzle and a flame builds.
- The burner enters a fault state if, during commissioning, the oil pump does not supply sufficient oil during the pre-purge time. Repeat the burner start by pressing reset.
- Measure temperature and CO<sub>2</sub> in the inlet air and enter the values in the commissioning report (see the commissioning report chapter).
- The flue is not gas tight if the CO<sub>2</sub> content > 0.2%; rectify the leak.
- Terminate the emissions test mode by turning the temperature selector back to its original position.
- If emissions test mode is not reset manually, the appliance switches back to the original operating mode automatically after 15 minutes.
- Remove the test probe and close the test port. Ensure the cap is seated firmly.

### CO<sub>2</sub> settings via pump pressure

#### Adjusting the CO<sub>2</sub> value in the upper load range (stage 2) (emissions test mode)



If no control accessory is connected to the appliance or the CO<sub>2</sub> set value is not achieved by matching the pipe lengths, the CO<sub>2</sub> setting is made via pump pressure control:

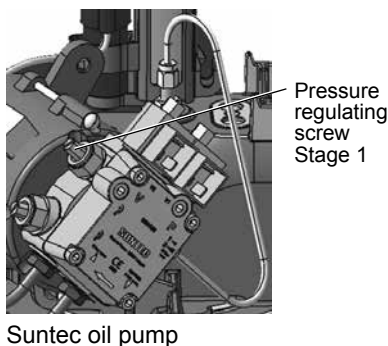
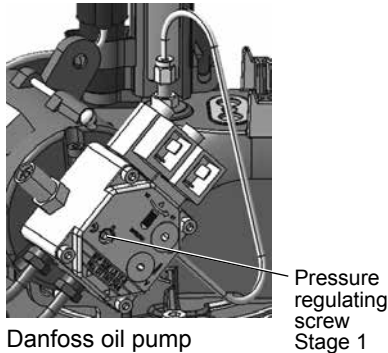
- Remove front and top casing.
- Pivot the control unit downwards.
- Insert the oil pressure gauge into the pump's pressure gauge test port.
- Remove the cap from the r.h. "flue gas" test port.
- Insert the test probe of the CO<sub>2</sub> measuring instrument into the "flue gas" test port (approx. 70 mm).
- Turn the heating water temperature selector to "Emissions test"  (illuminated signal ring as status indicator flashes yellow.)
- Measure the CO<sub>2</sub> content and compare it against the values given in the stage 2 table below.
- If required, amend the CO<sub>2</sub> content with the pressure regulating screw stage 2 with a 4 mm Allen key (Danfoss design) or SW 8 open-ended spanner (Suntec design).

**Turn clockwise - higher CO<sub>2</sub> value**

**Turn anti-clockwise - lower CO<sub>2</sub> value**

- Check whether the pump pressure is still within the tolerance range. If not, then check the nozzle and mixer head.
- Terminate the emissions test mode by turning the DHW temperature selector back to its original position.

#### Adjust the CO<sub>2</sub> value in the lower load (stage 1)



- Press the reset button.
- Set the heating water temperature selector to 8.
- Approx. 2 min. after the burner starts, measure the CO<sub>2</sub> content with the CO<sub>2</sub> test equipment and compare it against the values given in the stage 1 table below.
- If required, amend the CO<sub>2</sub> content with the pressure regulating screw stage 1 with a 4 mm Allen key (Danfoss design) or SW 8 open-ended spanner (Suntec design).

Take this measurement within 4 s. of the burner start. If necessary, repeat the start phase for setting procedures by turning back the heating water temperature selector and pressing the reset button.

**Turn clockwise - higher CO<sub>2</sub> value**

**Turn anti-clockwise - lower CO<sub>2</sub> value**

Appliance open		COB-15	COB-20	COB-29	COB-40
Set CO <sub>2</sub> value	Stage 2	12,7 ± 0,3%			
	Stage 1	12,7 ± 0,3%			
O <sub>2</sub> set value	Stage 2	3,8 ± 0,4%			
	Stage 1	3,8 ± 0,4%			

Appliance open		COB-15	COB-20	COB-29	COB-40
Stage 2	Pump pressure	12.0 ± 2.5 bar	16.8 ± 2.5 bar	16.8 ± 2.5 bar	23.5 ± 2.5 bar
Stage 1	Pump pressure	5.0 ± 1.0 bar	8.5 ± 1.0 bar	8.5 ± 1.0 bar	11.0 ± 1.0 bar

**Note** The pump pressure in stage 2 must always be greater than that in stage 1 to prevent damage to the oil pump.

- Check whether the pump pressure is still within the tolerance range. If not, then check the oil nozzle and mixer head.
- Terminate boiler operation by turning the heating water temperature selector back to its original position.
- Remove the oil pressure gauge and close the aperture again.

## C) Checking the CO<sub>2</sub> adjustment

- After completing the work, refit the casing cover and check the CO<sub>2</sub> value with the boiler closed.
- When correctly set, the boiler should not exceed the maximum CO<sub>2</sub> values in accordance with the table below.

Appliance closed		COB-15	COB-20	COB-29	COB-40
CO <sub>2</sub> max	Stage 2	13,5 %			
	Stage 1	13,5 %			
O <sub>2</sub> min.	Stage 2	2,7 %			
	Stage 1	2,7 %			

- If the CO<sub>2</sub> value increases too greatly, the balanced flue must be checked.
- Enter flue gas values such as CO<sub>2</sub> content, flue gas CO content and soot value in the commissioning report (see the commissioning report chapter).
- Remove the test probe and close the test port. Ensure the cap is seated firmly.

## Completing the adjustments

- Check the control parameters and match them to the system if necessary.
- Check the condensate drain.
- Instruct the customer in the operation of the device, with the aid of the operating and installation instructions.
- Complete the commissioning report (see the commissioning report chapter) and hand over the instructions to the customer.
- Instruct the customer about the need for annual servicing.
- Instruct the customer about energy saving options.
- Refer your customer to section "Information regarding energy efficient operation" in the operating instructions.

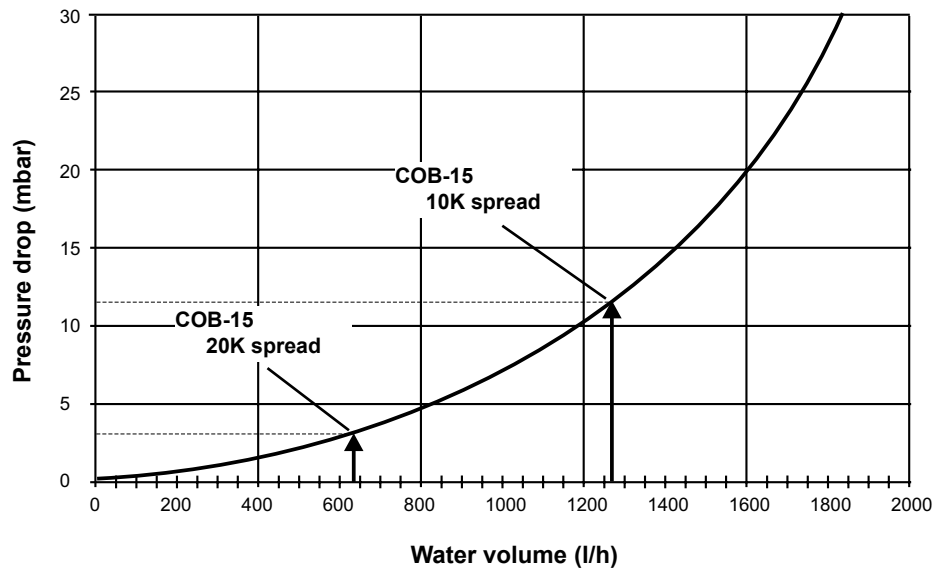
Commissioning steps	Test values or confirmation
1.) Fuel oil	Standard EL <input type="checkbox"/> Low sulphur EL <input type="checkbox"/> Bio-oil B10 <input type="checkbox"/>
2.) Oil leak test carried out?	<input type="checkbox"/>
3.) Air/flue system checked?	<input type="checkbox"/>
4.) Water connections checked for tightness?	<input type="checkbox"/>
5.) Trap filled?	<input type="checkbox"/>
6.) Boiler and system vented?	<input type="checkbox"/>
7.) System pressure 1.5 - 2.5 bar?	<input type="checkbox"/>
8.) Function test carried out?	<input type="checkbox"/>
9.) Flue gas test: Flue gas temperature gross Inlet air temperature Flue gas temperature net Carbon dioxide content (CO <sub>2</sub> ) or oxygen content (O <sub>2</sub> ) Carbon monoxide content (CO) Soot value.	_____ t <sub>A</sub> [°C] _____ t <sub>i</sub> [°C] _____ (t <sub>A</sub> - t <sub>L</sub> ) [°C] _____ % _____ ppm _____
10.) Casing fitted?	<input type="checkbox"/>
12.) Control parameters checked?	<input type="checkbox"/>
11.) System user instructed; documentation handed over?	<input type="checkbox"/>
12.) Commissioning confirmed?	Date: _____  Signature: _____

## NTC sensor resistances

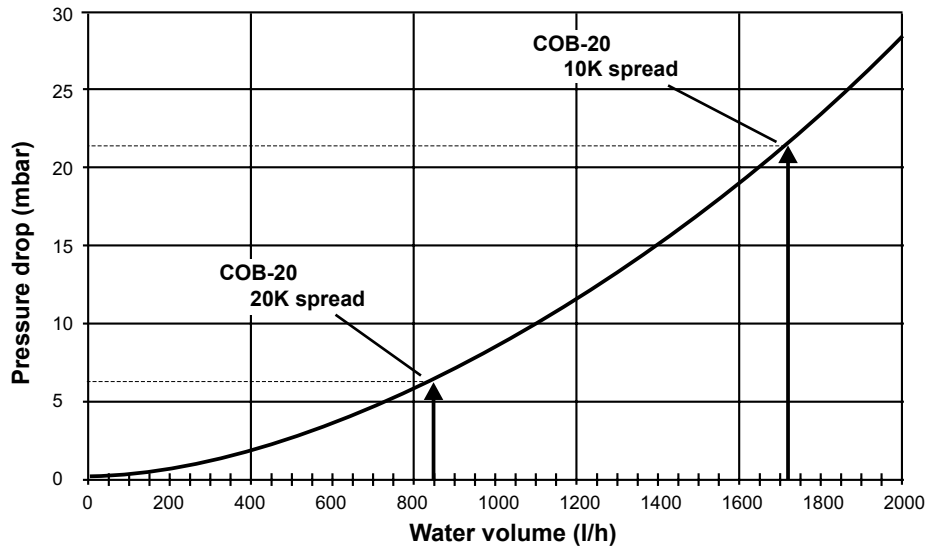
Boiler sensor, cylinder sensor,  
Outside sensor, header sensor,  
DHW heating sensor

Temp. °C	Resist. Ω	Temp. °C	Resist. Ω	Temp. °C	Resist. Ω	Temp. °C	Resist. Ω
-21	51393	14	8233	49	1870	84	552
-20	48487	15	7857	50	1800	85	535
-19	45762	16	7501	51	1733	86	519
-18	43207	17	7162	52	1669	87	503
-17	40810	18	6841	53	1608	88	487
-16	38560	19	6536	54	1549	89	472
-15	36447	20	6247	55	1493	90	458
-14	34463	21	5972	56	1438	91	444
-13	32599	22	5710	57	1387	92	431
-12	30846	23	5461	58	1337	93	418
-11	29198	24	5225	59	1289	94	406
-10	27648	25	5000	60	1244	95	393
-9	26189	26	4786	61	1200	96	382
-8	24816	27	4582	62	1158	97	371
-7	23523	28	4388	63	1117	98	360
-6	22305	29	4204	64	1078	99	349
-5	21157	30	4028	65	1041	100	339
-4	20075	31	3860	66	1005	101	330
-3	19054	32	3701	67	971	102	320
-2	18091	33	3549	68	938	103	311
-1	17183	34	3403	69	906	104	302
0	16325	35	3265	70	876	105	294
1	15515	36	3133	71	846	106	285
2	14750	37	3007	72	818	107	277
3	14027	38	2887	73	791	108	270
4	13344	39	2772	74	765	109	262
5	12697	40	2662	75	740	110	255
6	12086	41	2558	76	716	111	248
7	11508	42	2458	77	693	112	241
8	10961	43	2362	78	670	113	235
9	10442	44	2271	79	670	114	228
10	9952	45	2183	80	628	115	222
11	9487	46	2100	81	608	116	216
12	9046	47	2020	82	589	117	211
13	8629	48	1944	83	570	118	205

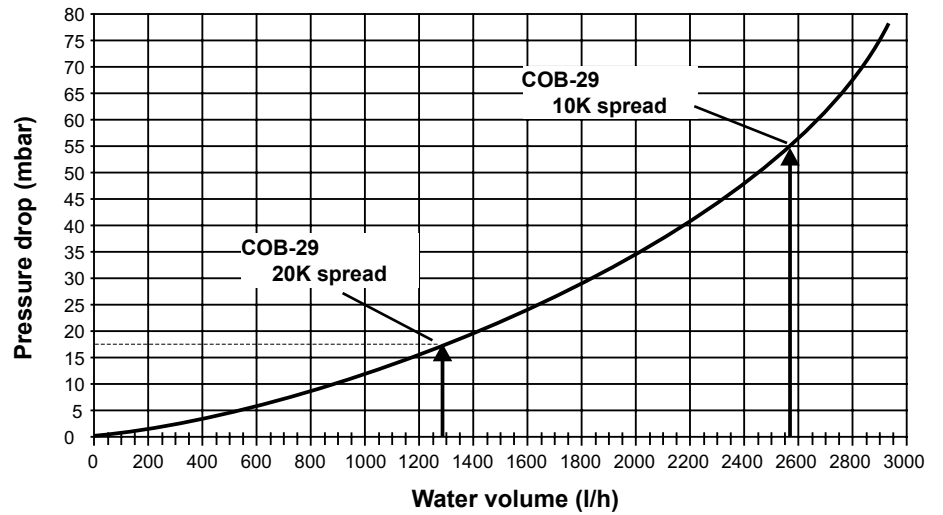
## Pressure drop on the heating CGB-15 pressure drop



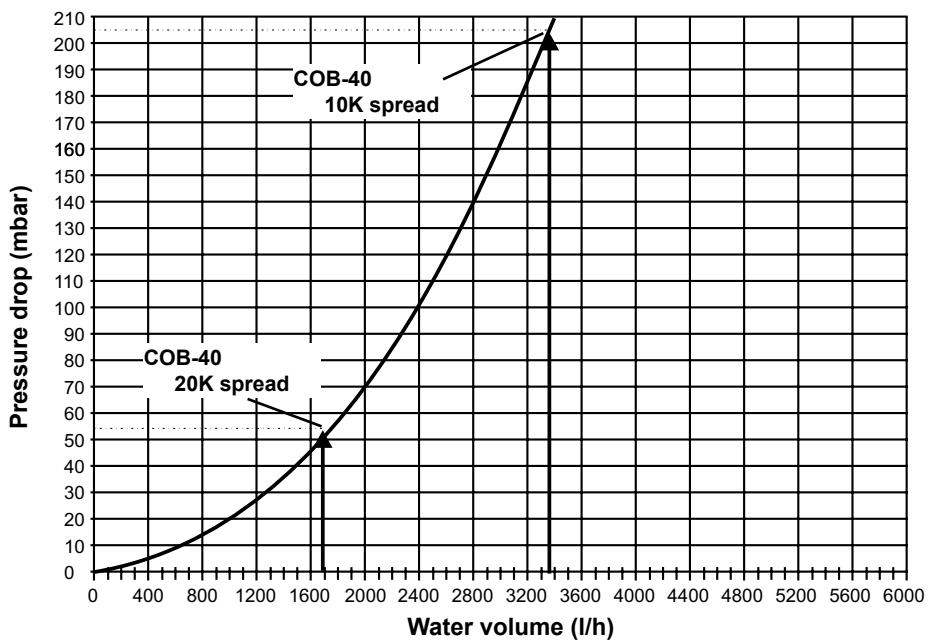
Pressure drop on the heating  
CGB-20 pressure drop



Pressure drop on the heating  
Pressure drop COB-29



Pressure drop on the heating  
Pressure drop COB-40





### General information

For reasons of operational safety, use only original Wolf components for balanced flues and standard flues.

Where necessary, adapt the installation examples to the relevant building regulations and requirements in your country/region. Discuss any questions relating to the installation of inspection covers and vents with the local flue gas inspector.



At low outside temperatures, the water vapour contained in the flue gas may condense and freeze on the air/flue gas routing system. This ice may fall from the roof causing injuries or material losses. Prevent falling ice with suitable measures, e.g. installation of a suitable snow guard.



If the balanced flue crosses different floors, route the pipes outside the installation room inside a duct with a fire resistance of at least 90 min. If this instruction is not followed, and if there is exposure to fire from outside, there is a risk that the fire and smoke are transmitted to other floors. This again results in a risk of asphyxiation, or severe to life-threatening burns and poisoning.

Condensing boilers with a balanced flue outlet above the roof may only be installed in attics, or in rooms where the ceiling also forms the roof, or where only the roof construction is located above the ceiling.

The following applies to boilers with a balanced flue above the roof, where only the roof structure lies above the ceiling:



If fire resistance is required for the ceiling, the pipes for combustion air supply and flue gas must be equipped with a casing in the area between the top edge of the ceiling and the roof skin. The casing must provide the same fire resistance as the ceiling and must be made from non-combustible materials. If the precautions mentioned here are not taken, and if there is exposure to fire from outside, there is a risk that the fire and smoke are transmitted to other floors. This again results in a risk of asphyxiation, or severe to life-threatening burns and poisoning.



If fire resistance is not required for the ceiling, route the ducts for combustion air supply and flue gas expulsion between the top edge of the ceiling and the roof skin inside a duct made from non-combustible, rigid materials or inside a protective metal pipe (mechanical protection). If the precautions mentioned here are not taken, and if there is exposure to fire from outside, there is a risk that the fire and smoke are transmitted to other floors. This again results in a risk of asphyxiation, or severe to life-threatening burns and poisoning.

No clearance is required between the concentric balanced flue and combustible materials or components, as temperatures above 85°C will not occur at the rated heating output.



A balanced flue without a duct must not be routed through other installation rooms, as mechanical protection is not ensured. Otherwise, if there is exposure to fire from outside, there is a risk that the fire and smoke are transmitted to other floors. This again results in a risk of severe to life-threatening burns and poisoning.

Note

Ducts which were previously connected to an oil or solid fuel boiler must be thoroughly cleaned by the chimney sweep. There must be no dust, sulphur or soot residues left on the inner surface of the chimney. If this is not possible, use a separate ventilation supply. If the combustion air is drawn in via the cleaned duct, the prior use can cause odours in the boiler room.



Outside the duct, secure the balanced flue or standard flue with spacer clips. These must be placed at a minimum of 50 cm from the appliance connection and upstream/downstream of diversions, to prevent the pipe joints being pulled apart. Flue gas may escape if these instructions are not observed. This again results in a risk of asphyxiation, or severe life-threatening poisoning. Additionally, falling parts may result in injuries or damage to the device.

#### Connection to the air/flue gas routing system

It must be possible to inspect the entire cross-section of the flues. Therefore, install an appropriate cleaning and/or inspection port inside the boiler room; agree suitable arrangements with the local flue gas inspector.

#### Flue cascade

Flue cascades are only suitable in balanced flue operation. They must be designed to EN 13984-1.




A flue cascade is only permitted with a tested flue gas damper. Operation with a leaking flue gas damper carries a risk of asphyxiation or severe to life threatening injuries caused by the leaking flue gas.

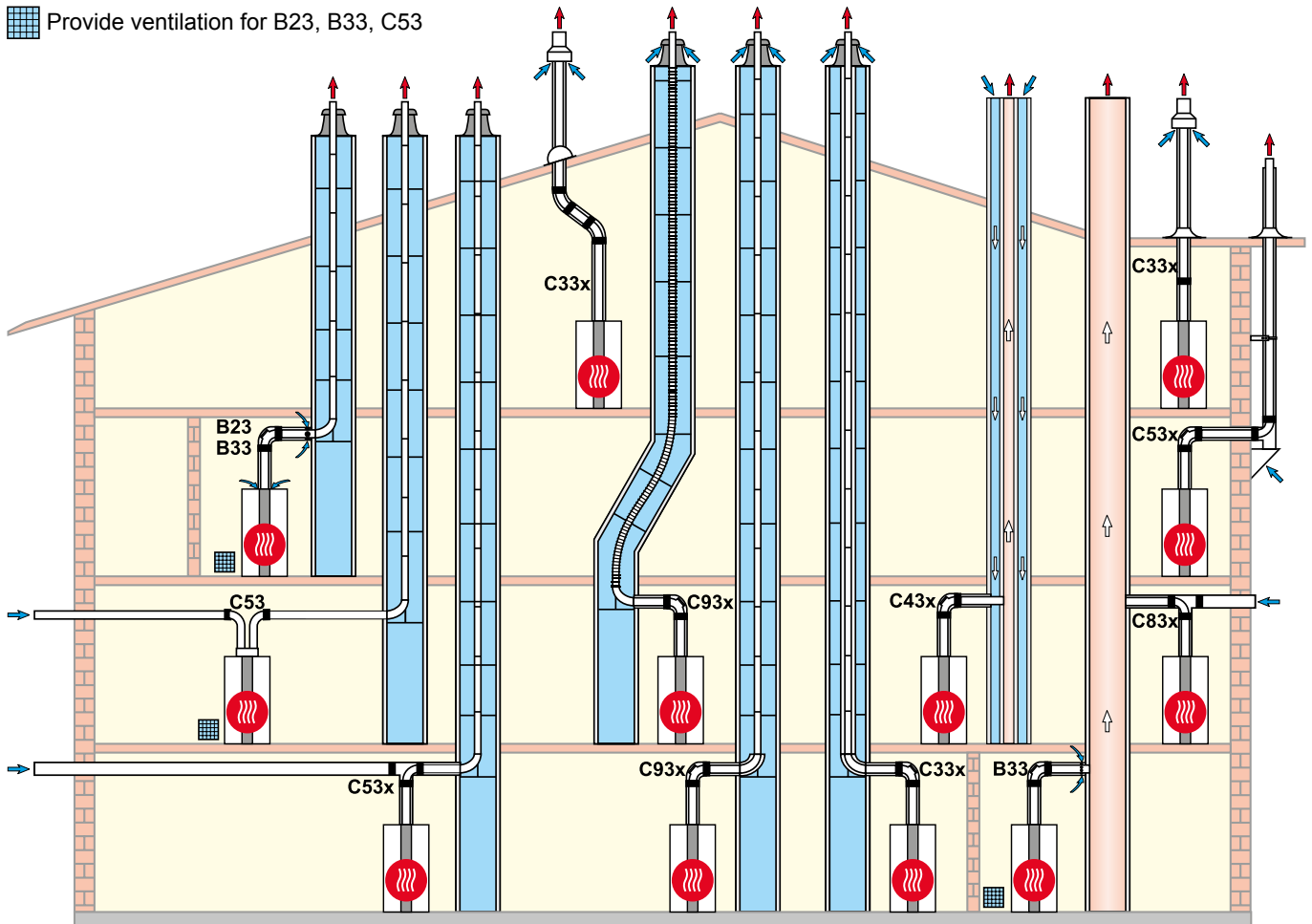
#### Flue gas temperature limiter

The electronic flue gas temperature limiter switches the oil condensing boiler off when the flue gas temperature exceeds 120 °C.

Note

The appliance will go back into operation when the reset button is pressed. It is important to find out why the appliance deactivated before resetting the boiler. Resetting the boiler when the flue gas temperature is too high can destroy the flue gas system.

 Provide ventilation for B23, B33, C53



### Connection types

Boiler Type	Appliance type <small>1), 2), 3)</small>	Operating mode		Can be connected to				
		Room unsealed	Room sealed	Moisture-resistant chimney	Balanced flue chimney	Air/flue gas routing	Certified balanced flue	Moisture-resistant flue
COB-15/20/29/40	B23, B33, C33x, C43x, C53, C53x, C63x, C83x, C93x	Yes	Yes	B33, B23, C83x	C43x	C33x, C53x, C93x	C63x	B23, C53x, B33

<sup>1)</sup> Mark "x" indicates that all components of the flue are surrounded by combustion air and meet higher requirements for gas tightness.

<sup>2)</sup> For types B23 and B33, the combustion air is drawn from the installation room (open flue combustion equipment).

For type C, the combustion air is drawn through a sealed system from the outside (balanced flue combustion equipment)

The following balanced flues or standard flues with CE-0036-CPD-9169003 certification may be used (see also the balanced flue system):

- Flue DN60
- Concentric balanced flue DN60/100
- Flexible flue DN60
- Flue DN80
- Concentric balanced flue DN 80/125
- Concentric balanced flue (on an external wall) DN 80/125
- Flexible flue DN 83
- Flue DN 110
- Flexible flue DN 110
- Concentric balanced flue DN 110/160
- DN 160 flue (for cascade operation)

The necessary type plates and certificates are included with the relevant WOLF accessories. Please also observe the installation information supplied with the accessories.

## Air/flue gas routing

	Condensing boiler versions	Maximum length <sup>1)</sup>				
		COB-15	COB-20	COB-29	COB-40	
B23	Flue in a duct and combustion air directly via the appliance (open flue)	DN 60	20	-	-	-
		DN 80	30	30	30	-
		DN 110	-	-	-	30
B33	Flue in duct with horizontal, concentric supply line (open flue)	DN 60	18	-	-	-
		DN 80	30	30	30	-
		DN 110	-	-	-	30
B 33	Connection to a moisture-resistant chimney with horizontal concentric connection pipe (open flue)		Calculation to EN 13384 (balanced flue manufacturer)			
C33x	Vertical concentric roof outlet through a pitched or flat roof, vertical concentric balanced flue for installation in a duct, (balanced flue)	DN60/110	9	-	-	-
		DN 80/125	24	22	18	-
		DN110/160	-	-	-	14
C43x	Connection to a moisture-resistant balanced flue chimney, maximum pipe length from centre of boiler bend to connection 3 m (room sealed)		Calculation to EN 13384 (balanced flue manufacturer)			
C53	Connection to the flue in a shaft and supply air pipe through an external wall (balanced flue, supply air pipe 4 m, 1x bend 87°)	DN 80/125	30	30	30	-
		DN110/160	-	-	-	30
C53x	Connection to a flue on an external wall (room sealed/balanced flue)	DN 80/125	30	30	30	-
		DN110/160	-	-	-	30
C53x	Connection to the flue in a shaft and supply air through an external wall (balanced flue, supply air pipe 4 m, 1x bend 87°)	DN 80/125	30	30	30	-
		DN110/160	-	-	-	30
C83x	Concentric connection to moisture-resistant flue gas chimney and combustion air through external wall (room sealed)		Calculation to EN 13384 (balanced flue manufacturer)			
C93x	Vertical flue for installation in a shaft, with minimum dimensions rigid or flexible with horizontal concentric connection pipe DN 60/110, vertical DN 60	Rigid DN 60	13	-	-	-
		Flexible DN 60	9	-	-	-
C93x	Vertical flue for installation in a shaft, with minimum dimensions rigid or flexible with horizontal concentric connection pipe DN 80/125, vertical DN 80 or DN 83	Rigid DN 80	29	24	21	-
		Flexible DN 83	27	21	17	-
C93x	Vertical flue for installation in a shaft, with minimum dimensions rigid or flexible with horizontal concentric connection pipe DN 110/160, vertical DN 110	Rigid DN 110	-	-	-	22
		Flexible DN 110	-	-	-	22

<sup>1)</sup> Available fan draught: COB-15: 32-65 Pa / COB-20: 45-65 Pa / COB-29: 55-105 Pa / COB-40: 70-150 Pa  
(The maximum length corresponds to the total length from the appliance to the flue terminal)

**Note** The calculation was made taking the pressure conditions into account (geodetic height: 325 m). The specified lengths refer to concentric balanced flues and standard flues, and apply to original WOLF components only.

Where necessary, adapt the installation examples to the relevant building regulations and requirements in your country/region. Discuss any questions relating to the installation, particularly regarding the inspection components and ventilation apertures, prior to installation with your local flue gas inspector.

### Calculating the balanced flue length

The calculated length of the balanced flue or standard flue is derived from the straight pipe length and the length equivalent of any pipe bends.

Example:

Length of straight balanced flue 5.5 m

87° support bend = 2.0 m

2 x 45° bends = 2 x 1.2 m

$L = 5.5 \text{ m} + 1 \times 2.0 \text{ m} + 2 \times 1.2 \text{ m}$

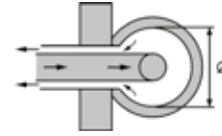
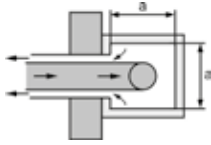
$L = 9.9 \text{ m}$

Bend	Type	Calculated length [m]
30°	Single wall	0,4
45°	Single wall	0,6
87°	Single wall	1,0
30°	Concentric	0,7
45°	Concentric	1,2
87°	Concentric	2,0

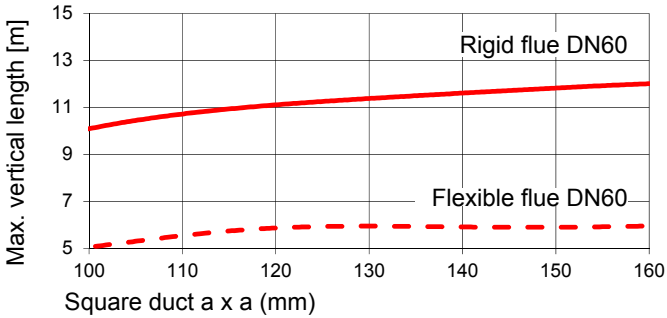
### Minimum duct sizes for room sealed operation C93x

Assuming:

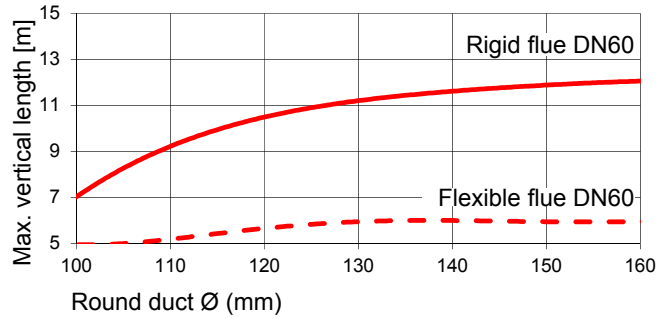
1 x 87° bend + 1.5 m horizontal with 87° support bend



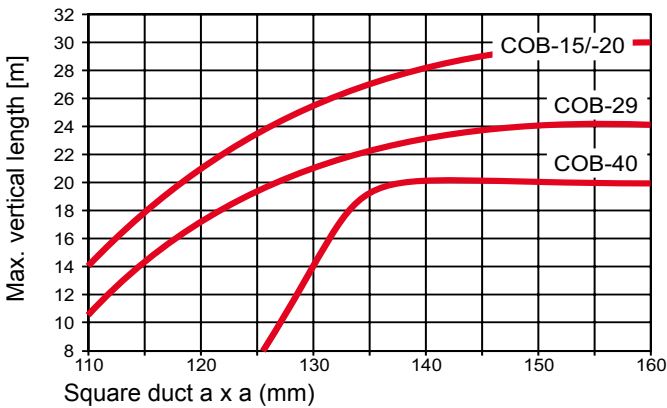
Flue DN60 (COB-15)



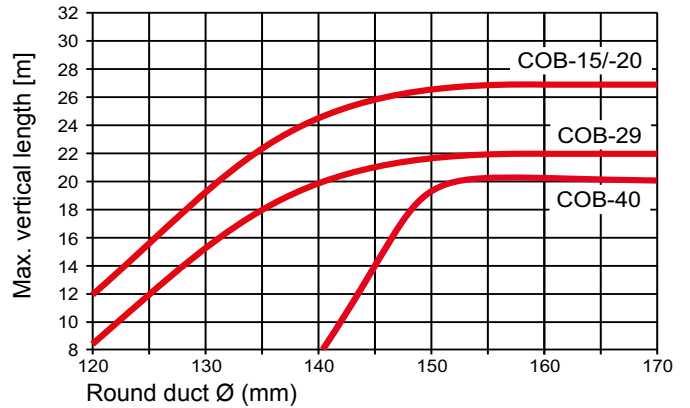
Flue DN60 (COB-15)



Flue DN80 (COB-15/20/29), DN110 (COB-40)



Flue DN80 (COB-15/20/29), DN110 (COB-40)

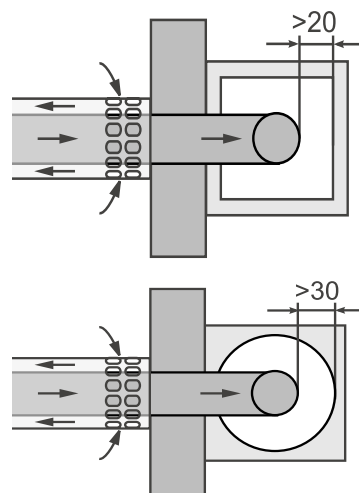


### Minimum duct sizes for room sealed operation B23, B33 and room sealed operation C53(x)

The space between the flue line and shaft shall be continuously back-ventilated.

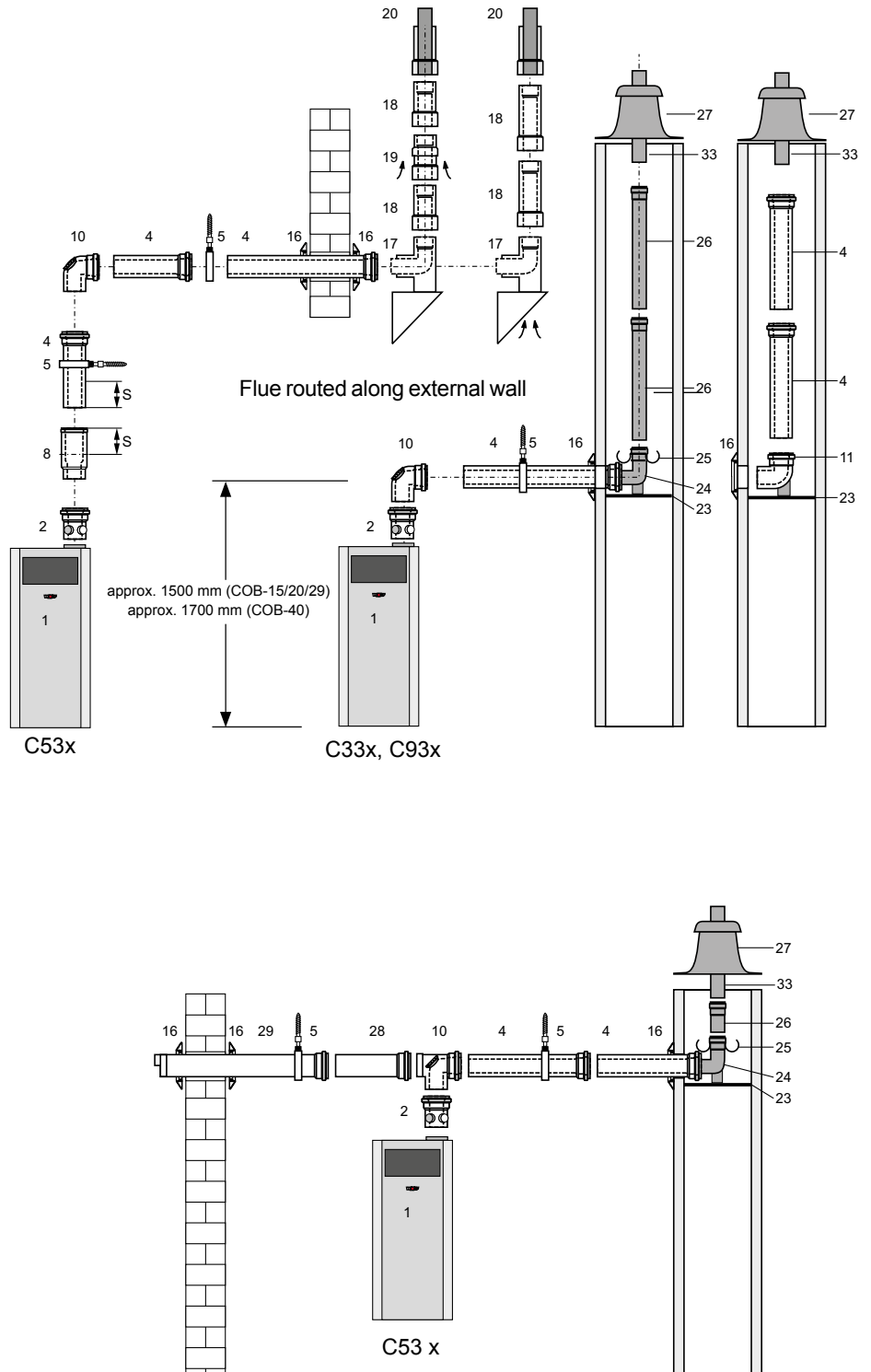
Due to the required secondary ventilation in accordance with DIN 18160, when routing a balanced flue so that it is rigid and flexible in a duct, the following min. shaft size is required.

	Circular Ø	Square □
DN 60	130 mm	110 mm
DN 80	150 mm	130 mm
DN 110	190 mm	170 mm



Concentric room sealed C33x, C93x, and flue on an external wall C53x (examples) DN 60/100, DN 80/125 and DN 110/160

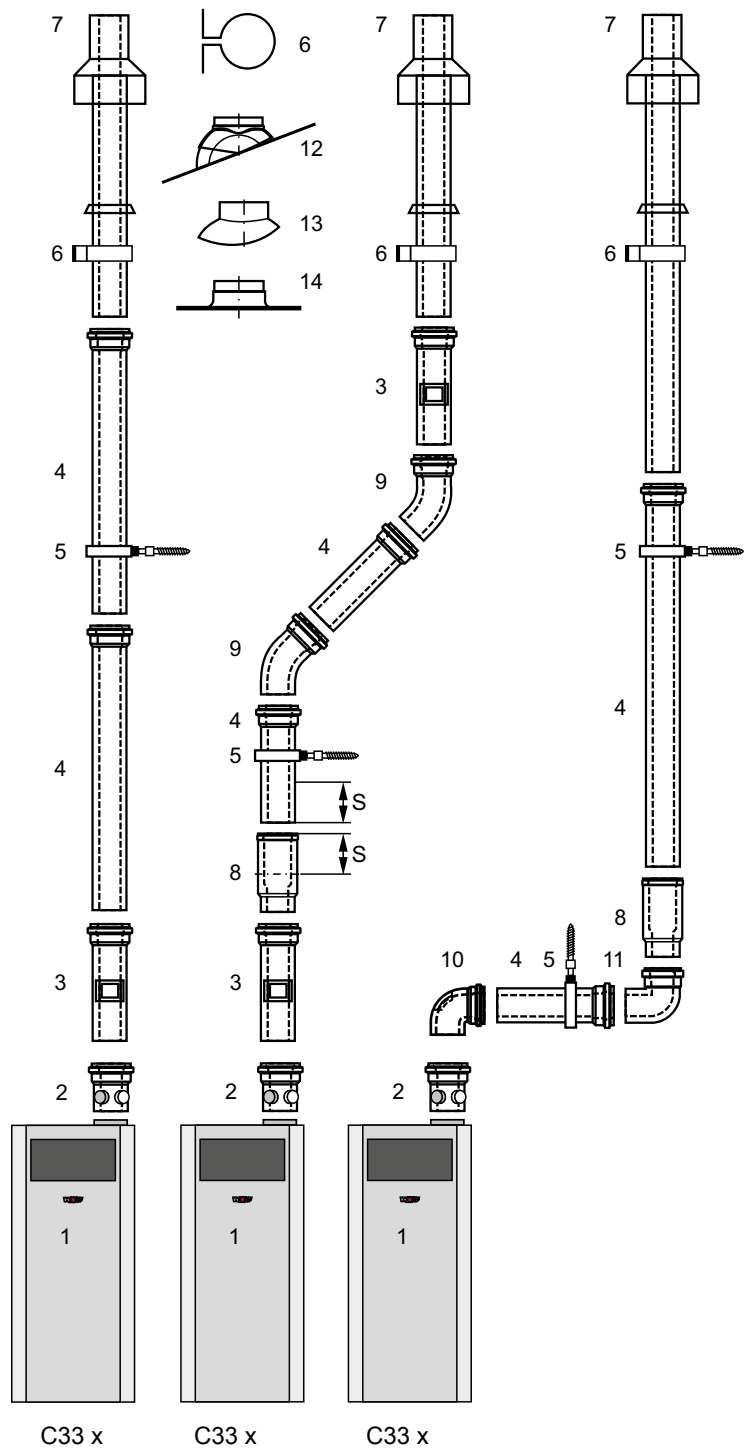
- 1 Oil condensing boiler
- 2 Connection adaptor with test nipple for air and flue gas (included in COB standard delivery)
- 4 Balanced flue  
500 mm  
1000 mm  
2000 mm
- 5 Spacer clip
- 7 Balanced flue routing vertical  
Roof outlet for flat or pitched roof
- 8 Separator (sliding socket) if required
- 10 87° inspection piece
- 11 Bend 87°
- 16 Pipe collar
- 17 External wall connection with smooth ends on both sides of the air pipe
- 18 Balanced flue, external walls
- 19 Ventilation air connector
- 20 Wall outlet, external wall
- 21 Roof outlet, external wall
- 23 support rail
- 24 87° support bend
- 25 Spacer
- 26 PP flue pipe  
500 mm  
1000 mm  
2000 mm
- 27 Shaft cover
- 28 Air pipe
- 29 Air intake pipe
- 33 PP outlet



Install the horizontal flue with a fall of approx. 3° (6 cm/m) towards the boiler. Route the horizontal air supply with a 3° fall towards the outside – install the air inlet with wind protection; permissible wind pressure at the air inlet 90 Pa. The burner will not operate with higher wind pressure. In a duct, after the support bend (24), a rigid or flexible flue can be connected.

## Vertical, concentric, balanced flue C33x for room sealed operation (Examples) DN 60/100, DN 80/125 and DN 110/160

- 1 Oil condensing boiler
- 2 Connection adaptor with test nipple for air and flue gas (included in COB standard delivery)
- 3 Balanced flue with inspection port (250 mm long)
- 4 Balanced flue  
500 mm  
1000 mm  
2000 mm
- 5 Spacer clip
- 6 Mounting bracket for roof outlet
- 7 Balanced flue routing vertical (roof outlet) for flat or pitched roof
- 8 Separator (sliding socket) if required
- 9 45° bend
- 10 87° inspection piece
- 11 Bend 87°
- 12 Universal tile for pitched roof 25-45°
- 13 20°-50 "Klöber" adaptor °
- 14 Flat roof collar

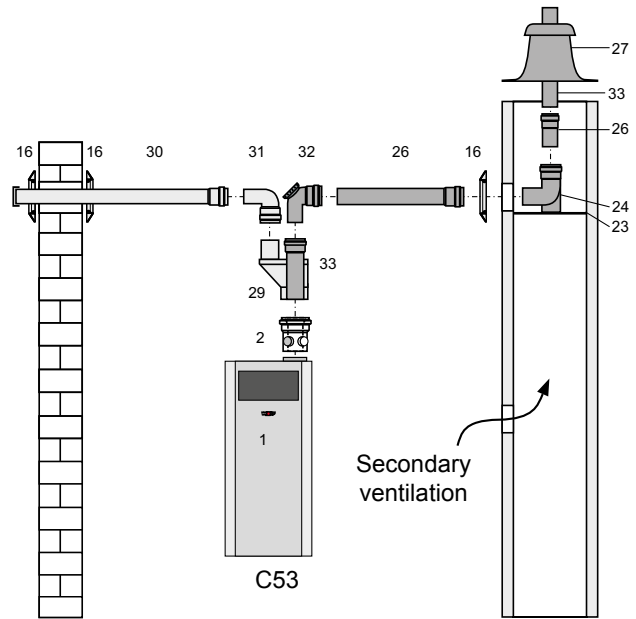


Install the horizontal flue with a fall of approx. 3° (6 cm/m) towards the boiler. When installing, slide the separator (8) fully into the female connection. Push the next balanced flue (4) 50 mm (dim. "S") into the female connection of the separator and ensure it is fully secured in this position, e.g. with pipe clamps (5) or with a locking screw on the air side. Lubricate the pipe ends and gaskets for easier installation (use only grease without silicone).

Prior to installation, liaise with your local flue gas inspector regarding the required inspection piece (3) (10).

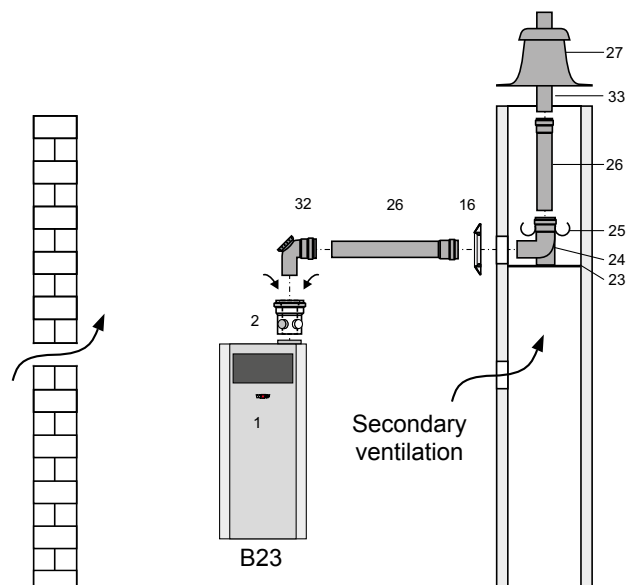
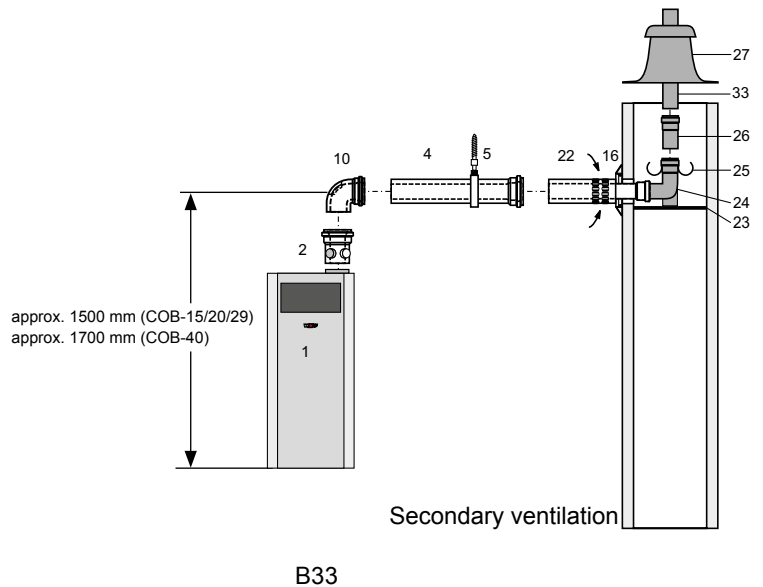
### Excentric, room-sealed flue C53 (example) DN 80 and DN 110

Install the balanced flue distributor 29 mm excentrically (29) for separate balanced flue on the oil condensing boiler.  
Install the horizontal flue with a fall of approx. 3° (6 cm/m) towards the boiler. Route the horizontal air supply with a 3° fall towards the outside – install the air inlet with wind protection; permissible wind pressure at the air inlet 90 Pa. The burner will not operate with higher wind pressure.



### B23 open flue system and B33 (example) DN 60/100, DN 80/125 and DN 110/160

- 1 Oil condensing boiler
- 2 Connection adaptor with test nipple for air and flue gas (included in COB standard delivery)
- 4 Balanced flue
  - 500 mm
  - 1000 mm
  - 2000 mm
- 5 Spacer clip (only if required)
- 10 87° inspection piece
- 16 Pipe collar
- 22 Connection to B33 flue chimney 250 mm length with air intake
- 23 support rail
- 24 87° support bend
- 25 Spacer
- 26 PP flue pipe
  - 500 mm
  - 1000 mm
  - 2000 mm
- 27 Shaft cover
- 29 Balanced flue distributor
- 30 Air intake pipe
- 31 Bend 87°
- 32 87° bend with inspection port
- 33 PP outlet



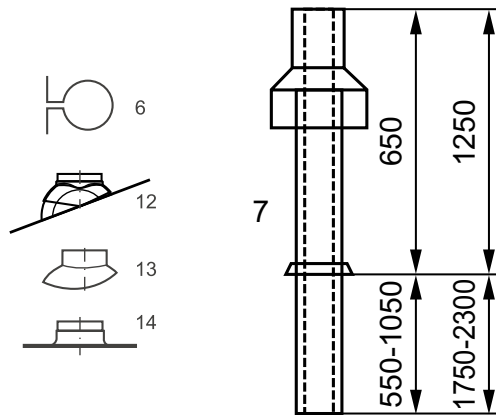
### Supplementary installation instructions for balanced flue DN 80/125

Flat roof: Affix the ceiling outlet approx. Ø 130 mm (14) deep into the roof cover.

Pitched roof: For (12), observe the installation instructions on the cowl regarding roof pitch.

Insert roof outlet (7) into the roof from above and secure vertically with (6) to a rafter or brickwork.

**Install the roof outlet only in its original condition. Modifications are not permissible.**



If an inspection port is required for the balanced flue, insert a balanced flue with inspection port (3) (allow a length of 250 mm).

Bend	Offset
87°	Min. 204 mm
45°	Min. 93 mm

Determine distance A. Length of balanced flue (4) must always be approx. 100 mm longer than distance A. Always trim the flue on the smooth side, **never** on the female connection side.  
**Chamfer the flue with a file after trimming.**

Fit connection adaptor with test nipple (2) to the oil condensing boiler connection.

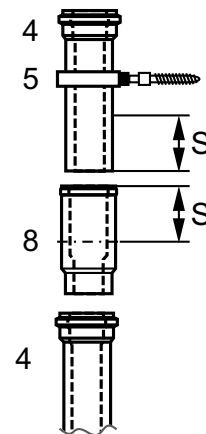
Separate the flue via a slide coupling (8)

For inspection purposes (3), undo and move the inspection piece clamp. Undo and remove the inspection pipe cover.



Connection adaptor with test nipple (2)      Sliding socket - (Disconnect device) (8)      Inspection piece (3)

When installing, slide the separator (8) fully into the female connection. Push the next balanced flue (4) 50 mm (dim. "S") into the female connection of the separator and ensure it is fully secured in this position, e.g. with pipe clamps (5) or with a locking screw on the air side.



Sliding socket - (Disconnect device) (8)

**Note** Wet or lubricate all air/flue gas joints prior to installation, e.g. using a grease without silicone.



### Connection to moisture-resistance B23 flue systems for open flue operation

The horizontal flue must **not be longer than 3 m**. The flue gas chimney must be CE-designated.

### Connection to moisture-resistance B33 flue systems for open flue operation

Horizontal balanced flues must not be more than 3 m long when connecting the system to a flue gas chimney. The flue gas chimney must be CE-designated. If necessary, obtain the connection piece from the chimney manufacturer. The air apertures to the boiler room must be completely free from obstruction..

### Connection to a moisture-resistant balanced flue chimney type C43x

Horizontal balanced flues must **not be more than 3 m long when connecting the system to a balanced flue chimney**. The balanced flue chimney must be CE-designated.

### Connection to moisture-resistant flue, type C53, C83x, for room sealed operation

The horizontal flue must **not be longer than 3 m**. For horizontal air supply pipes, a maximum length of 3 m is recommended. Observe special requirements for flues that are not surrounded by combustion air in accordance with locally applicable combustion regulations.

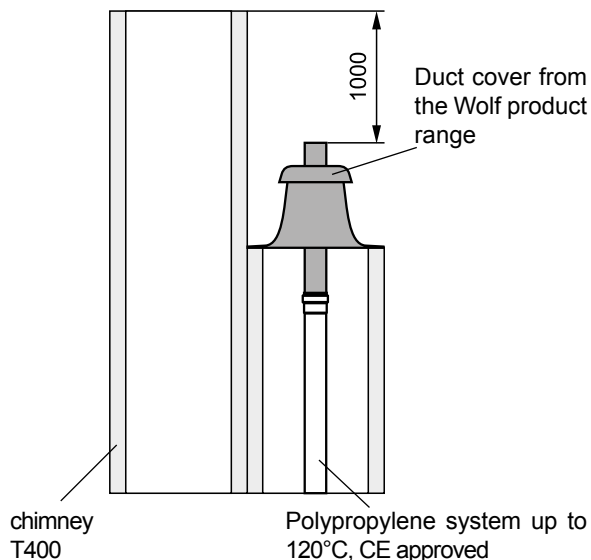
### Connection to a combustion air and flue system type C63x that is not tested together with the oil combustion equipment

Original Wolf components are designed for long-term use and are matched for use with Wolf oil condensing boilers. When using CE-designated third party equipment, the installer is responsible for the correct sizing and perfect function of such systems. Faults, material losses and injuries resulting from incorrect pipe lengths, excessive pressure drop, premature wear with escaping flue gas and condensate or incorrect function, e.g. through components working themselves loose, are excluded from our warranty if third party equipment that is only CE/DIBT certified is used.

Horizontal balanced flues must be no longer than 3 m, when connecting the system to a combustion air supply and a separate flue.

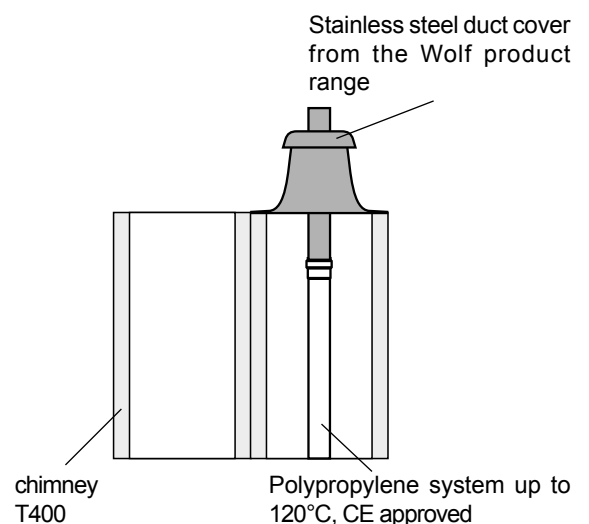
If the combustion air is drawn from the duct, the duct must be free from contamination.

### Connection to moisture-resistant flue with two or multiple draught chimneys (duct)

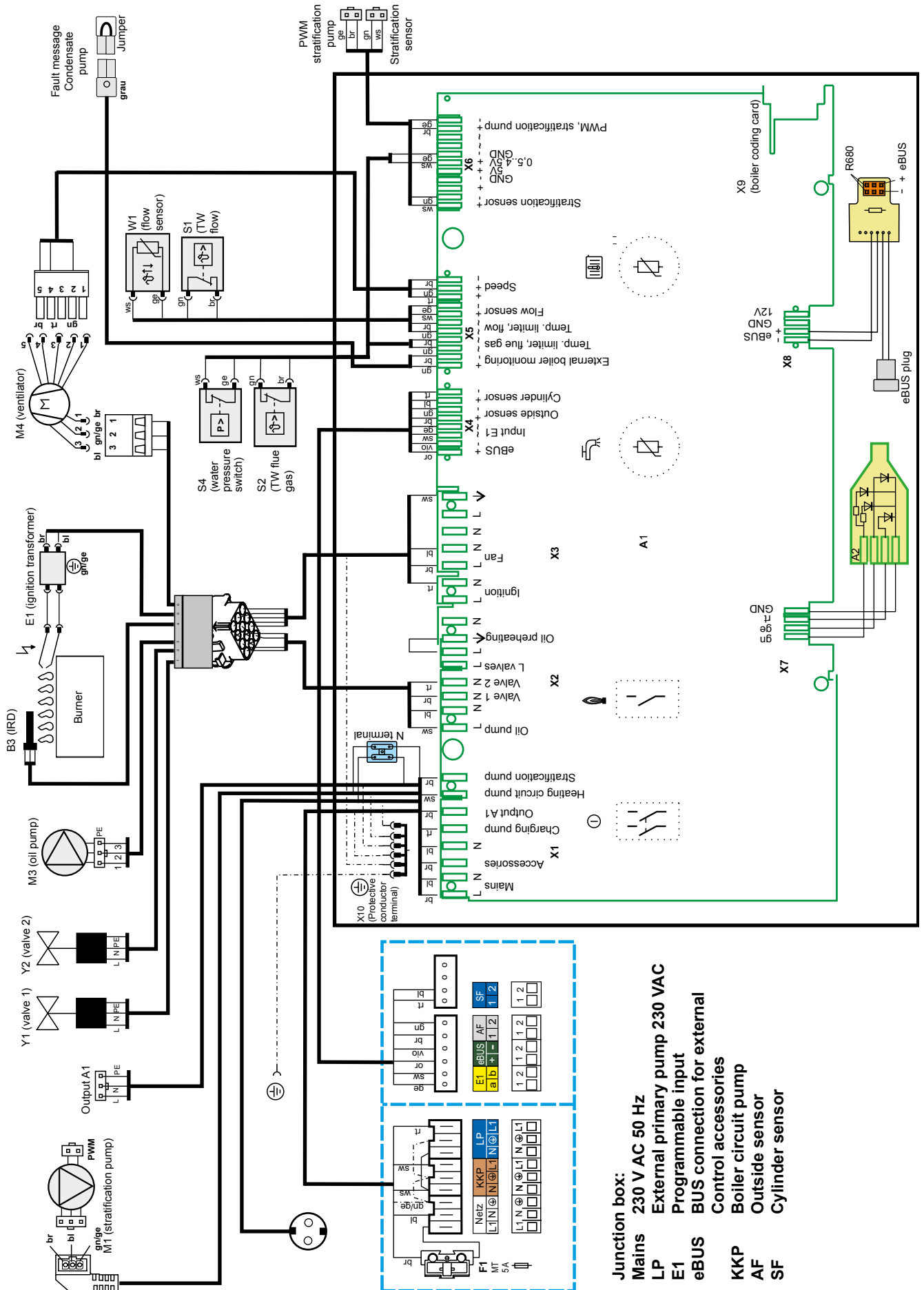


Open flue and room sealed operation

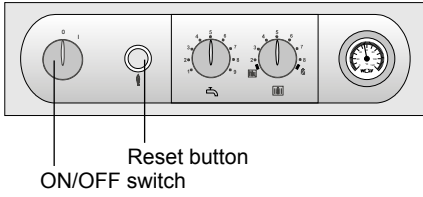
The requirements of DIN 18160-1 supplementary sheet 3 apply. Notify your local flue gas inspector prior to installation.



Open flue operation only



### Reset



Observe the following steps to implement a reset:

- The ON/OFF switch must be set to **0** (OFF).
- Press and hold down the reset button on the standard control unit whilst setting the ON/OFF switch to **I** (ON).
- Hold down the reset button again for at least 2 seconds after switching on the system.

All parameters (individual settings) are returned to their factory settings by a reset.

Any faults will be displayed as fault codes by Wolf controllers with eBUS capability. Cause and remedy may be allocated to these faults using the following table. This table is designed to allow your local heating contractor to trace the fault more easily.

Fault code	Fault	Cause	Remedy
1	HLSC excess temp.	The flow temperature has exceeded 110 °C	Test heating circuit pump, vent system press reset button, clean heat exchanger
4	None flame established	No flame at burner start Inspection window for flame monitor/mixer head contaminated Faulty flame monitor Air in oil line Negative pressure at oil pump too high, max. 0.3 bar Overpressure at oil pump too high, max. 0.5 bar Boiler contaminated	Check oil line, if necessary check fuel level, check ignition electrode and ignition transformer, press reset Check inspection window for flame monitor/mixer head Check flame monitor and lead Check that the condensate can drain off freely Service required
5	Flame failure during operation	Negative pressure on the oil pump is too high, max. 0.3 bar flue gas return system (flue gas in the supply air) Boiler contaminated	Check CO <sub>2</sub> values, check flame monitor and lead, press reset, check flue system for leaks, service required
6	Temperature limiter - excess temperature	The flow has exceeded the limit of the temperature limiter (100 °C)	Vent the system, check the heating circuit pump
7	Flue gas sensor, excess temperature	The flue gas temperature has exceeded 120 °C	Clean the heat exchanger, Check whether all displacement devices are installed, check the flow through the boiler Check if flow and return are properly connected Press reset button.
8	Flue gas/supply air damper does not respond	Flue gas/ventilation air damper contact (E1) fails to close or open when there is a demand	Check flue gas/ventilation air damper and wiring
11	External light recognition	A flame is recognised before the burner starts	Press reset Check oil pump solenoid valve
12	Boiler sensor faulty	Faulty boiler sensor or lead	Check sensor and lead
14	Faulty cylinder sensor SF	Faulty cylinder sensor or lead	Check sensor and lead
15	Outside temperature sensor faulty	Faulty outside temperature sensor or lead	Check sensor and lead
25	Fan fault	The fan does not reach the set speed Boiler contaminated	Check supply to the fan Check fan Check that the condensate can drain off freely Check balanced flue system press reset Service required
26	Fan fault	The fan does not stop	Check power cable to fan Check fan Press reset
27	Faulty stratification sensor	Faulty stratification cylinder sensor or lead	Check sensor and lead

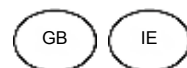
<b>Fault code</b>	<b>Fault</b>	<b>Cause</b>	<b>Remedy</b>
40	Insufficient water pressure	The pressure switch does not switch on, water pressure is too low (< 0.8 bar)	Check system pressure >1.5 bar Check water pressure switch, check lead, press reset
42	Condensate pump not pumping	Condensate pump is defective Drain line is blocked Power supply pump is missing	Check pump, check drain line, check mains plug and fuse
52	Max. Cylinder heating time exceeded	Set cylinder temperature has not been reached, sufficient flow	Vent cylinder, increase cylinder heating time (HG20), check cylinder sensor installation
78	Header sensor fault	Faulty header sensor or lead	Check sensor and lead
	Insufficient heating system heating, frequent cycling	Air in the heating or cylinder system	Vent radiators, vent cylinder primary circuit, vent heating circuit pumps, vent boiler
	No DHW heating	Sensor is not detected by the boiler	Switch boiler off and on; sensor will be detected on restarting

## Product fiche according to Regulation (EU) no. 811/2013



Product group: COB

Supplier's name or trade mark			Wolf GmbH	Wolf GmbH	Wolf GmbH	Wolf GmbH
Name			COB-15	COB-20	COB-29	COB-40
Seasonal space heating energy efficiency class			A	A	A	A
Rated heat output	$P_{\text{rated}}$	kW	15	20	29	39
Seasonal space heating energy efficiency	$\eta_s$	%	91	91	91	92
Annual energy consumption for space heating	$Q_{\text{HE}}$		8396	11209	16571	21913
Sound power level, indoors	$L_{\text{WA}}$	dB	56	60	60	60
Any specific precautions that shall be taken when the space heater is assembled, installed or maintained			See installation instruction	See installation instruction	See installation instruction	See installation instruction



## Product fiche according to Regulation (EU) no. 811/2013



Product group: COB-15 + Speicher

Supplier's name or trade mark			Wolf GmbH	Wolf GmbH	Wolf GmbH	Wolf GmbH
Name			COB-15 + TS-160L	COB-15 + SEM-2-300	COB-15 + SEM-2-400	COB-15 + SEM-1-500
Load profile			XL	XL	XL	XXL
Seasonal space heating energy efficiency class			A	A	A	A
Water heating energy efficiency class			A	A	A	B
Rated heat output	$P_{rated}$	kW	15	15	15	15
Annual energy consumption for space heating	$Q_{HE}$		8396	8396	8396	8396
Annual fuel consumption for water heating	AFC	GJ	17	18	18	23
Seasonal space heating energy efficiency	$\eta_s$	%	91	91	91	91
Seasonal water heating energy efficiency	$\eta_{wh}$	%	83	81	81	80
Sound power level, indoors	$L_{WA}$	dB	56	56	56	56
Any specific precautions that shall be taken when the space heater is assembled, installed or maintained			See installation instruction	See installation instruction	See installation instruction	See installation instruction

## Product fiche according to Regulation (EU) no. 811/2013



Product group: COB-20 + Speicher

Supplier's name or trade mark			Wolf GmbH	Wolf GmbH	Wolf GmbH	Wolf GmbH
Supplier's model identifier			COB-20 + TS-160L	COB-20 + SEM-2-300	COB-20 + SEM-2-400	COB-20 + SEM-1-500
Load profile			XL	XL	XL	XXL
Seasonal space heating energy efficiency class			A	A	A	A
Water heating energy efficiency class			A	A	A	B
Rated heat output	$P_{rated}$	kW	20	20	20	20
Annual energy consumption for space heating	$Q_{HE}$		11209	11209	11209	11209
Annual fuel consumption for water heating	AFC	GJ	18	18	17	23
Seasonal space heating energy efficiency	$\eta_s$	%	91	91	91	91
Seasonal water heating energy efficiency	$\eta_{wh}$	%	81	82	84	79
Sound power level, indoors	$L_{WA}$	dB	60	60	60	60
Any specific precautions that shall be taken when the space heater is assembled, installed or maintained			See installation instruction	See installation instruction	See installation instruction	See installation instruction

Supplier's name or trade mark			Wolf GmbH	Wolf GmbH
Supplier's model identifier			COB-20 + SEM-1-750	COB-20 + SEM-1-1000
Load profile			XXL	XXL
Seasonal space heating energy efficiency class			A	A
Water heating energy efficiency class			B	B
Rated heat output	$P_{rated}$	kW	20	20
Annual energy consumption for space heating	$Q_{HE}$		11209	11209
Annual fuel consumption for water heating	AFC	GJ	23	23
Seasonal space heating energy efficiency	$\eta_s$	%	91	91
Seasonal water heating energy efficiency	$\eta_{wh}$	%	79	79
Sound power level, indoors	$L_{WA}$	dB	60	60
Any specific precautions that shall be taken when the space heater is assembled, installed or maintained			See installation instruction	See installation instruction





## Product fiche according to Regulation (EU) no. 811/2013



Product group: COB-29 + Speicher

Supplier's name or trade mark			Wolf GmbH	Wolf GmbH	Wolf GmbH	Wolf GmbH
Supplier's model identifier			COB-29 + TS-160L	COB-29 + SEM-2-300	COB-29 + SEM-2-400	COB-29 + SEM-1-500
Load profile			XL	XL	XL	XXL
Seasonal space heating energy efficiency class			A	A	A	A
Water heating energy efficiency class			A	A	A	B
Rated heat output	$P_{\text{rated}}$	kW	29	29	29	29
Annual energy consumption for space heating	$Q_{\text{HE}}$		16571	16571	16571	16571
Annual fuel consumption for water heating	AFC	GJ	18	18	18	23
Seasonal space heating energy efficiency	$\eta_s$	%	91	91	91	91
Seasonal water heating energy efficiency	$\eta_{\text{wh}}$	%	81	81	83	78
Sound power level, indoors	$L_{\text{WA}}$	dB	60	60	60	60
Any specific precautions that shall be taken when the space heater is assembled, installed or maintained			See installation instruction	See installation instruction	See installation instruction	See installation instruction

Supplier's name or trade mark			Wolf GmbH	Wolf GmbH
Supplier's model identifier			COB-29 + SEM-1-750	COB-29 + SEM-1-1000
Load profile			XXL	XXL
Seasonal space heating energy efficiency class			A	A
Water heating energy efficiency class			B	B
Rated heat output	$P_{\text{rated}}$	kW	29	29
Annual energy consumption for space heating	$Q_{\text{HE}}$		16571	16571
Annual fuel consumption for water heating	AFC	GJ	23	23
Seasonal space heating energy efficiency	$\eta_s$	%	91	91
Seasonal water heating energy efficiency	$\eta_{\text{wh}}$	%	78	78
Sound power level, indoors	$L_{\text{WA}}$	dB	60	60
Any specific precautions that shall be taken when the space heater is assembled, installed or maintained			See installation instruction	See installation instruction



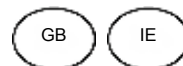
## Product fiche according to Regulation (EU) no. 811/2013



Product group: COB-40 + Speicher

Supplier's name or trade mark			Wolf GmbH	Wolf GmbH	Wolf GmbH	Wolf GmbH
Name			COB-40 + SEM-2-300	COB-40 + SEM-2-400	COB-40 + SEM-1-500	COB-40 + SEM-1-750
Load profile			XL	XL	XXL	XXL
Seasonal space heating energy efficiency class			A	A	A	A
Water heating energy efficiency class			B	B	B	B
Rated heat output	$P_{rated}$	kW	39	39	39	39
Annual energy consumption for space heating	$Q_{HE}$		21913	21913	21913	21913
Annual fuel consumption for water heating	AFC	GJ	18	18	23	23
Seasonal space heating energy efficiency	$\eta_s$	%	92	92	92	92
Seasonal water heating energy efficiency	$\eta_{wh}$	%	79	79	78	78
Sound power level, indoors	$L_{WA}$	dB	60	60	60	60
Any specific precautions that shall be taken when the space heater is assembled, installed or maintained			See installation instruction	See installation instruction	See installation instruction	See installation instruction

Supplier's name or trade mark			Wolf GmbH
Name			COB-40 + SEM-1-1000
Load profile			XXL
Seasonal space heating energy efficiency class			A
Water heating energy efficiency class			B
Rated heat output	$P_{rated}$	kW	39
Annual energy consumption for space heating	$Q_{HE}$		21913
Annual fuel consumption for water heating	AFC	GJ	23
Seasonal space heating energy efficiency	$\eta_s$	%	92
Seasonal water heating energy efficiency	$\eta_{wh}$	%	78
Sound power level, indoors	$L_{WA}$	dB	60
Any specific precautions that shall be taken when the space heater is assembled, installed or maintained			See installation instruction



Type			COB-15	COB-15/TS	COB-20	COB-20/TS	COB-29	COB-29/TS	COB-40
Condensing boiler	(Yes/No)		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Low temperature boiler (**)	(Yes/No)		No	No	No	No	No	No	No
B11 boiler	(Yes/No)		No	No	No	No	No	No	No
Space heater with CHP	(Yes/No)		No	No	No	No	No	No	No
If yes, with booster heater	(Yes/No)		-	-	-	-	-	-	-
Combi heating appliance	(Yes/No)		No	Yes	No	Yes	No	Yes	No
Information	Symbol	Unit							
Rated heating output	$P_{rated}$	kW	15	15	20	20	29	29	39
Usable heat at rated heating output and high temperature operation (*)	$P_4$	kW	14.7	14.7	19.6	19.6	29.0	29.0	38,8
Usable heat at 30% of rated heating output and low temperature operation (**)	$P_1$	kW	4.4	4.4	5,9	5,9	8.7	8.7	11,6
Auxiliary power consumption at full load	elmax	kW	0,122	0,122	0,139	0,139	0,174	0,174	0,205
Auxiliary power consumption at partial load	elmin	kW	0,049	0,049	0,049	0,049	0,062	0,062	0,072
Auxiliary power consumption in standby	$P_{SB}$	kW	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Seasonal central heating efficiency	$\eta_s$	%	91	91	91	91	91	91	92
Efficiency at rated heating output and high temperature operation (*)	$\eta_4$	%	91,2	91,2	91,6	91,6	91,1	91,1	91.9
Efficiency at 30% of rated heating output and low temperature operation (**)	$\eta_1$	%	97,3	97,3	96,8	96,8	97,1	97,1	97,5
Heat loss on standby	$P_{stby}$	kW	0,068	0,068	0,091	0,091	0,099	0,099	0,107
Energy consumption of ignition flame	$P_{ing}$	kW	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nitrogen oxide emission	$NO_x$	mg/kWh	74	74	90	90	90	90	84
Specified load profile	(M, L, XL, XXL)	-	-	XL	-	XL	-	XL	-
Daily power consumption	$Q_{elec}$	kWh	-	0,393	-	0,369	-	0,341	-
DHW heating energy efficiency	nwh	%	-	83	-	81	-	81	-
Daily fuel consumption	$Q_{fuel}$	kWh	-	23,020	-	23,832	-	23,775	-
Contact	WOLF GmbH, Industriestrasse 1, 84048 Mainburg, Germany								

(\*) High temperature operation means a return temperature of 60°C at the boiler inlet and a flow temperature of 80°C at the boiler outlet.

(\*\*) Low temperature operation means a return temperature (at the boiler inlet) of 30°C for condensing boilers, 37°C for low temperature boilers and 50°C for other heating appliances.

**DECLARATION OF CONFORMITY**

(to EN ISO/IEC 17050-1)

Number: 3062547  
Issued by: **WOLF GmbH**  
Address: Industriestrasse 1, D-84048 Mainburg  
Product: Oil condensing boiler  
COB/COB-TS

The product described above conforms to the requirements specified in the following documents:

§6, 1. BImSchV, 26.01.2010  
DIN EN 267, 11/1999  
DIN EN 303, 12/2003  
DIN EN 304, 01/2004  
DIN EN 15034, 01/2007  
DIN EN 15035, 05/2007  
DIN EN 12828, 06/2003  
DIN EN 61000-3-2: 2015 (EN 61000-3-2: 2014)  
DIN EN 61000-3-3: 2014 (EN 61000-3-3: 2013)  
DIN EN 55014-1: 2012 (EN 55014-1: 2006 + A1 : 2009 + A2 : 2011)  
DIN EN 55014-2: 2016 (EN 55014-2: 2015)  
DIN EN 60335-1: 2014 (EN 60335-1: 2012 / AC: 2014)  
DIN EN 60335-2-102: 2016 (EN 60335-2-102: 2016)

In accordance with the following Directives:


92/42/EEC (Efficiency Directive)  
2014/30/EU (EMC Directive)  
2014/35/EU (Low Voltage Directive)  
2009/125/EC (ErP Directive)  
2011/65/EU (RoHS Directive)  
EU Regulation 811/2013  
EU Regulation 813/2013

this product is identified as follows:



Mainburg, 20/07/2017

  
Gerdewan Jacobs  
Technical Director

  
Jörn Friedrichs  
Head of Development

**DECLARATION OF CONFORMITY**

(to ISO/IEC 17050-1)

Number: 3062547  
Issued by: **WOLF GmbH**  
Address: Industriestrasse 1, D-84048 Mainburg  
Product: TS cylinder

The product described above conforms to the requirements specified in the following documents:

DIN EN 12897:2006-09

In accordance with the following Directives:

2009/125/EC (ErP Directive)

this product is identified as follows:

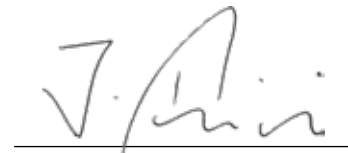


Mainburg, 20/07/2017



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Gerdewan Jacobs  
Technical Director



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Jörn Friedrichs  
Head of Development





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**Doc. no.: 3062547\_201802**

**Subject to technical modifications.**