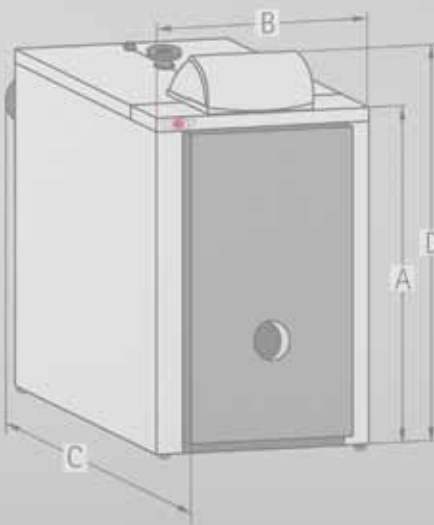
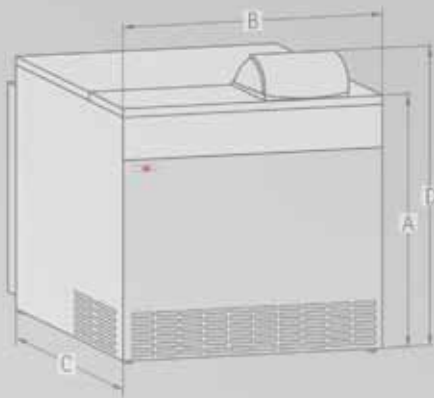




Technical documentation

Commercial / industrial boilers up to 1017 kW

Steel boilers MKS • Cast iron boilers MK-1/MK-2 • Gas-fired boilers NG-31E/NG-31ED

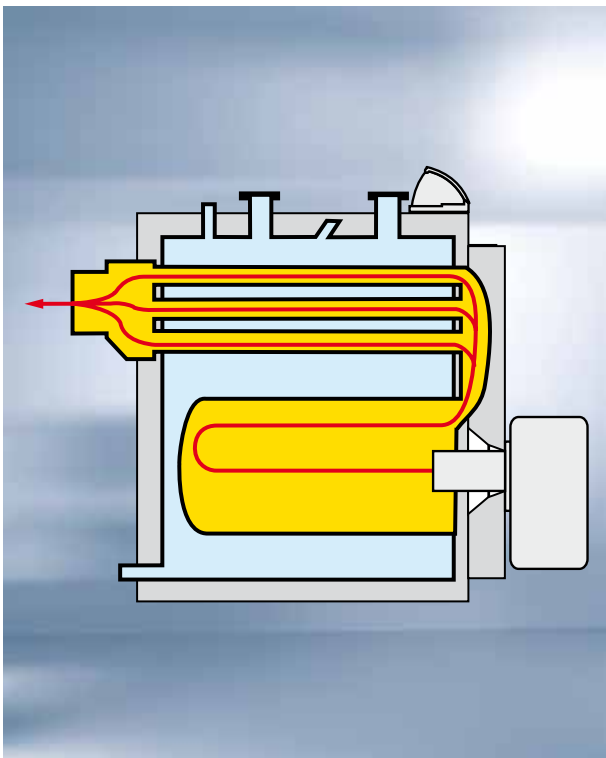




Steel boiler for pressure firing in accordance with DIN 4702/EN 303 and valid EC directives, for low temperature operation

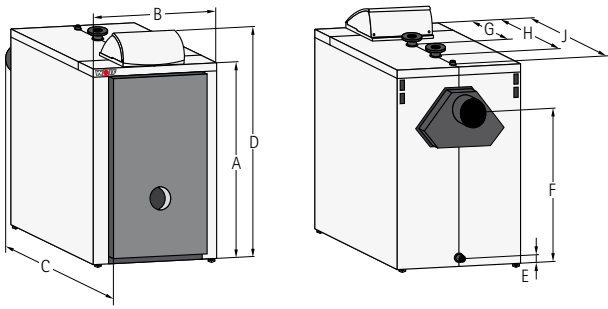
Steel boiler MKS

Oil/gas-fired boilers from steel MKS 70-550 kW



- High normative efficiency: up to 94% (Hi) / 89% (Hs) for the best possible energy utilisation
- Large heat exchanger surfaces made of smooth tubing for condensationfree low-temperature operation
- Stainless steel turbulators inserted into heat exchanger surfaces, low flue-gas temperatures
- Fully water-jacketed combustion chamber, no sizzling and expansion noises
- Full-width boiler door opening to left or right, easy cleaning
- Snug-fitted thermal insulation, 100mm thick, very low radiation losses
- Powder-painted casing with supreme finish, easy to assemble
- Six-year guarantee on boilers, two-year guarantee on electrical and moving parts

Technical Data



Type	MKS	85	100	140	190	250	340	420	500
Output range MKS	kW	70-100	85-120	110-160	160-230	200-300	280-380	360-460	420-550
Recommended range MKS	kW	70-85	85-100	110-140	160-190	200-250	280-340	360-420	420-500
Height/height without casing	A mm	1180 / 1155	1180 / 1155	1180 / 1155	1346 / 1320	1346 / 1320	1526 / 1500	1526 / 1500	1526 / 1500
Width /width without casing	B mm	794 / 600	794 / 600	794 / 600	974 / 780	974 / 780	1034 / 840	1034 / 840	1034 / 840
Length	C mm	1410	1410	1760	1948	1948	2065	2065	2065
Total height with control system	D mm	1360	1360	1360	1525	1525	1703	1703	1703
Filling, draining	E mm	203	203	203	172	172	178	178	178
Flue-gas pipe connection	F mm	922	922	922	1048	1048	1177	1177	1177
Heating return	G mm	324	324	324	367	367	430	430	430
Heating flow	H mm	724	724	1074	1117	1117	1184	1184	1184
Expansion flow	J mm	874	874	1224	1407	1407	1474	1474	1474
Flue-gas pipe diameter	mm	178	178	195	195	195	250	250	300
Recommended foundation	mm	1500x950	1500x950	2000x800*	2000x1000*	2000x1000*	2200x1200*	2200x1200*	2200x1200*
Filling, draining, expansion return	R	1½"	1½"	1½"	1½"	1½"	1½"	1½"	1½"
Heating return (Flange)	DN	65	65	65	80	80	100	100	100
Heating flow (Flange)	DN	65	65	65	80	80	100	100	100
Expansion flow, vent	R	1¼"	1¼"	1¼"	1½"	1½"	2"	2"	2"
Water capacity of boiler	Ltr.	216	213	288	508	494	697	665	635
Gas capacity of boiler	Ltr.	140	143	206	333	346	428	445	460
Heating surface area	m ²	3,5	3,8	5,2	8,0	8,4	10,6	12,5	14,2
Flue-gas resistance	mbar	0,3	0,4	0,8	1,1	1,4	2,0	2,0	2,0
Heating water resistance (at Δt = 20K)	mbar	1,2	1,7	3,5	4,5	5,5	9,0	14,0	19,0
Max. boiler overpressure	bar	4	4	4	4	4	4	4	4
Max. permissible temperaturer ¹⁾	°C	120	120	120	120	120	120	120	120
Relative stand-by loss	%	0,7	0,7	0,6	0,5	0,5	0,4	0,4	0,3
Flue-gas temperature ²⁾	°C	145-165	145-165	145-165	145-165	145-165	150-170	150-165	155-170
Flue-gas temperature 1st stage	°C	120	120	120	120	120	120	120	120
Flue-gas mass flow ²⁾ (Fuel oil CO ₂ = 13%)	kg/h	127-142	142-168	184-235	269-319	336-421	472-572	605-706	706-839
Flue-gas mass flow ²⁾ (Natural gas E CO ₂ = 9,5%)	kg/h	125-151	151-178	196-249	285-338	356-446	497-605	641-749	749-889
Flue-gas mass flow ²⁾ (Natural gas LL CO ₂ = 9,0%)	kg/h	129-157	157-185	203-259	296-351	371-461	518-626	666-778	778-925
Flue-gas mass flow ²⁾ (LPG CO ₂ = 11%)	kg/h	120-146	146-172	189-240	274-326	343-428	479-583	619-720	720-857
Weight Boiler	kg	406	413	524	730	772	908	975	1035
Electricity supply		230V / 50Hz / 10A							
CE ID number		CE-0085AR0034							

¹⁾ Overheat safety cutout convertible: 120°C/110°C/100°C.

²⁾ Figures for upper/lower boiler output in recommended range with a mean boiler water temperature of 60°C.

* Foundation to be provided on site

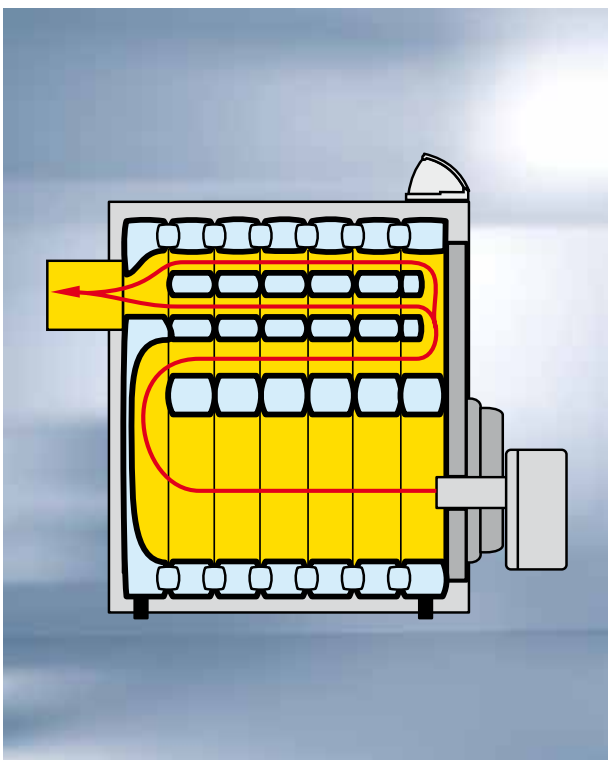
Height of feet/adjustment screws 20 mm ± 10 mm to be taken into account!



Cast iron boiler for pressure firing in accordance with DIN 4702/EN 303 and valid EC directives, for low-temperature operation.

Cast iron boiler MK-1

Oil/gas-fired boilers from cast iron MK-1 50-300 kW



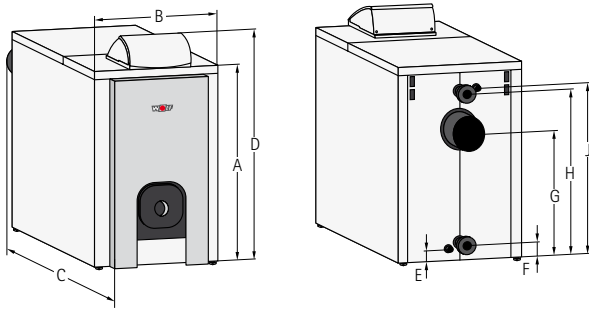
- High normative efficiency: up to 94% (Hi) / 89% (Hs) for the best possible energy utilisation
- Boiler elements made of durable, corrosion-resistant cast-iron
- Ideally proportioned combustion chamber
- Cast iron boiler door opens left/right accross entire front, easy cleaning
- Amply dimensioned thermal insulation
- Powder-painted casing with supreme finish, easy to assemble
- Six-year guarantee on boilers, two-year guarantee on electrical and moving parts

Delivery standards

Boiler body grouped and secured for shipment.

Casing, control unit and small items boxed for shipment.

Technical Data



Type	MK-1	80	110	140	180	220	260
Output range MK-1	kW	50-100	80-130	110-170	140-210	180-250	220-300
Recommended range MK-1	kW	50-80	80-110	110-140	140-180	180-220	220-260
Height/height without casing	A mm	1220 / 1148	1220 / 1148	1220 / 1148	1220 / 1148	1220 / 1148	1220 / 1148
Width /width without casing	B mm	825 / 585	825 / 585	825 / 585	825 / 585	825 / 585	825 / 585
Length	C mm	1125	1285	1445	1605	1765	1925
Total height with control system	D mm	1405	1405	1405	1405	1405	1405
Filling, draining	E mm	120	120	120	120	120	120
Heating return	F mm	160	160	160	160	160	160
Flue-gas pipe connection	G mm	860	860	860	860	860	860
Heating flow	H mm	1070	1070	1070	1070	1070	1070
Expansion flow, vent	J mm	1110	1110	1110	1110	1110	1110
Flue-gas pipe diameter	mm	179	179	179	179	179	179
Recommended foundation	mm	1300x850	1300x850	1500x950	1800x1000*	2000x1000*	2200x1000*
Filling, draining, expansion return	Rp	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"
Heating return (Flange)	DN	65	65	65	65	65	65
Heating flow (Flange)	DN	65	65	65	65	65	65
Expansion flow, vent	Rp	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"
Number of sections		4	5	6	7	8	9
Water capacity of boiler	Ltr.	104	125	147	168	190	211
Gas capacity of boiler	Ltr.	155	195	235	275	315	355
Heating surface area	m ²	4,4	5,6	6,8	8,0	9,2	10,4
Flue-gas resistance	mbar	0,11	0,18	0,4	0,5	0,8	1,2
Heating water resistance (at Δt = 20K)	mbar	3	5	8	11	17	26
Max. boiler overpressure	bar	4	4	4	4	4	4
Max. permissible temperature ¹⁾	°C	120	120	120	120	120	120
Relative stand-by loss	%	0,74	0,64	0,55	0,45	0,33	0,19
Flue-gas temperature ²⁾	°C	145-175	150-175	155-175	155-175	155-175	155-175
Flue-gas temperature 1st stage	°C	130	130	130	130	130	130
Flue-gas mass flow ²⁾ (Fuel oil EL CO ₂ = 13%)	kg/h	84-134	134-185	185-235	235-302	302-370	370-436
Flue-gas mass flow ²⁾ (Natural gas E CO ₂ = 9,5%)	kg/h	89-142	142-196	196-249	249-320	320-392	392-464
Flue-gas mass flow ²⁾ (Natural gas LL CO ₂ = 9,0%)	kg/h	92-147	147-202	202-258	258-331	331-407	407-479
Flue-gas mass flow ²⁾ (LPG CO ₂ = 11%)	kg/h	86-138	138-189	189-241	241-310	310-378	378-447
Weight Boiler	kg	505	600	704	809	903	999
Electricity supply		230V / 50Hz / 10A					
CE ID number		CE-0085AR0034					

¹⁾ Overheat safety cutout convertible: 120°C/110°C/100°C.

²⁾ Figures for upper/lower boiler output in recommended range with a mean water temperature of 60°C.

* Foundation to be provided on site

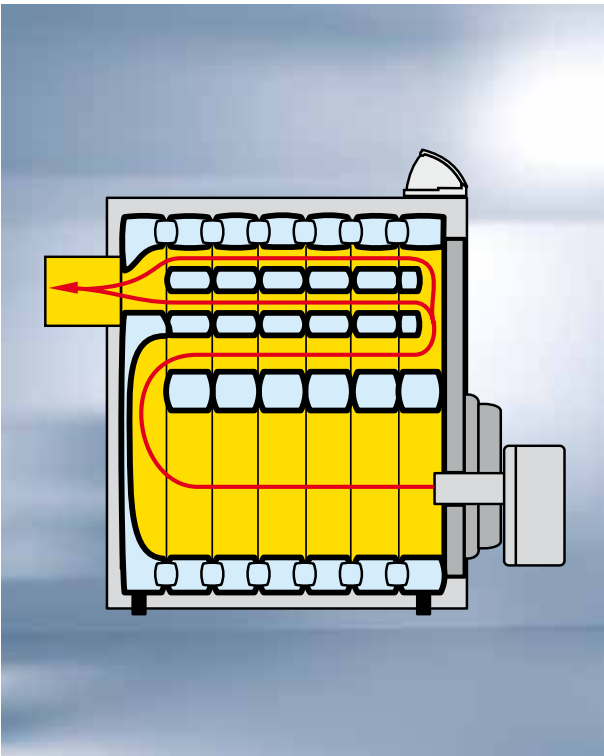
Height of feet/adjustment screws 20 mm ± 10 mm to be taken into account!

Cast iron boiler for pressure firing in accordance with DIN 4702/EN 303 and valid EC directives, for low-temperature operation.



Cast iron boiler MK-2

Oil/gas-fired boilers from cast iron MK-2 320-1017 kW



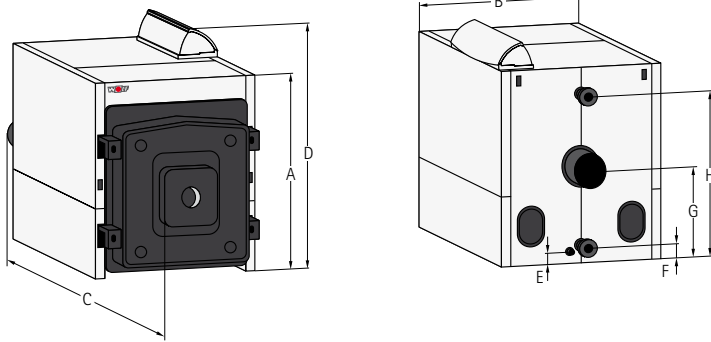
- Stainless steel turbulators integrated in flue-gas passes
- High normative efficiency: up to 94% 94% (Hi) / 89% (Hs) for the best possible energy utilisation
- Boiler elements made of durable, corrosion-resistant cast-iron
- Ideally proportioned combustion chamber
- Cast iron boiler door opens left/right accross entire front, easy cleaning
- Amply dimensioned thermal insulation
- Powder-painted casing with supreme finish, easy to assemble
- Six-year guarantee on boilers, two-year guarantee on electrical and moving parts

Delivery standards

Boiler body grouped and secured for shipment.

Casing, control unit and small items boxed for shipment.

Technical Data



Type	MK-2	320	380	440	500	560	670	780	900	1020
Output MK-2	kW	320	378	436	494	552	669	785	901	1017
Height/Height without casing	A mm	1300 / 1150	1300 / 1150	1300 / 1150	1300 / 1150	1300 / 1150	1300 / 1150	1300 / 1150	1300 / 1150	1300 / 1150
Width/width without casing	B mm	1130 / 930	1130 / 930	1130 / 930	1130 / 930	1130 / 930	1130 / 930	1130 / 930	1130 / 930	1130 / 930
Length	C mm	1409	1537	1665	1784	1921	2305	2561	2817	3076
Total height with control system	D mm	1495	1495	1495	1495	1495	1495	1495	1495	1495
Filling, draining	E mm	90	90	90	90	90	90	90	90	90
Boiler return	F mm	145	145	145	145	145	145	145	145	145
Flue-gas pipe connection	G mm	585	585	585	585	585	585	585	585	585
Boiler flow	H mm	1045	1045	1045	1045	1045	1045	1045	1045	1045
Flue-gas pipe diameter	mm	350*	350*	350*	350*	350	350	350	350	350
Recommended foundation (on site)	mm	1130x1412	1130x1540	1130x1665	1130x1785	1130x1925	1130x2310	1130x2565	1130x2820	1130x3080
Filling, draining, expansion return	Rp	1"	1"	1"	1"	1"	1"	1"	1"	1"
Boiler return, expansion return (Flange)	DN	100	100	100	100	100	100	100	100	100
Boiler flow (Flange)	DN	100	100	100	100	100	100	100	100	100
Number of sections		8	9	10	11	12	14	16	18	20
Water capacity of boiler	Ltr.	219	247	275	302	330	386	441	496	552
Gas capacity of boiler	Ltr.	504	564	624	684	744	864	984	1104	1224
Heating surface area	m ²	17,5	19,8	22,1	24,4	26,7	31,3	35,9	40,5	45,1
Flue-gas resistance	mbar	1,85	2,3	2,7	3,1	3,5	4,4	5,4	5,7	6,0
Heat. water resist. (at Δt = 20K)	mbar	15	21	29	39	52	77	77	108	145
Max. boiler overpressure (gauge)	bar	6	6	6	6	6	6	6	6	6
Max. permissible flow temperature ¹⁾	°C	120	120	120	120	120	120	120	120	120
Relative stand-by loss	%	0,11	0,11	0,11	0,10	0,09	0,09	0,09	0,08	0,08
Flue-gas temperature ¹⁾	°C	190	190	190	180	180	180	180	180	180
Flue-gas temperature 1st stage	°C	140	140	140	140	140	140	140	140	140
Flue-gas mass flow ²⁾ (Fuel oil EL CO ₂ = 13%)	kg/h	537	634	732	829	926	1123	1317	1512	1707
Flue-gas mass flow ²⁾ (Nat. gas E CO ₂ = 9,5%)	kg/h	564	666	768	871	973	1179	1384	1588	1792
Flue-gas mass flow ²⁾ (Nat. gas LL CO ₂ = 9,0%)	kg/h	592	699	806	914	1021	1238	1452	1667	1881
Flue-gas mass flow ²⁾ (LPG CO ₂ = 11%)	kg/h	545	644	743	842	940	1139	1337	1535	1732
Weight Boiler	kg	1551	1710	1868	2049	2206	2533	2857	3172	3489
Electricity supply		230V / 50Hz / 10A								
CE ID number		CE-0645B00118								

¹⁾ Overheat safety cutout convertible: 120°C/110°C/100°C.

²⁾ Related to a mean boiler water temperature of 60°C.

* Reduction from Ø 350mm to Ø 250mm included in delivery

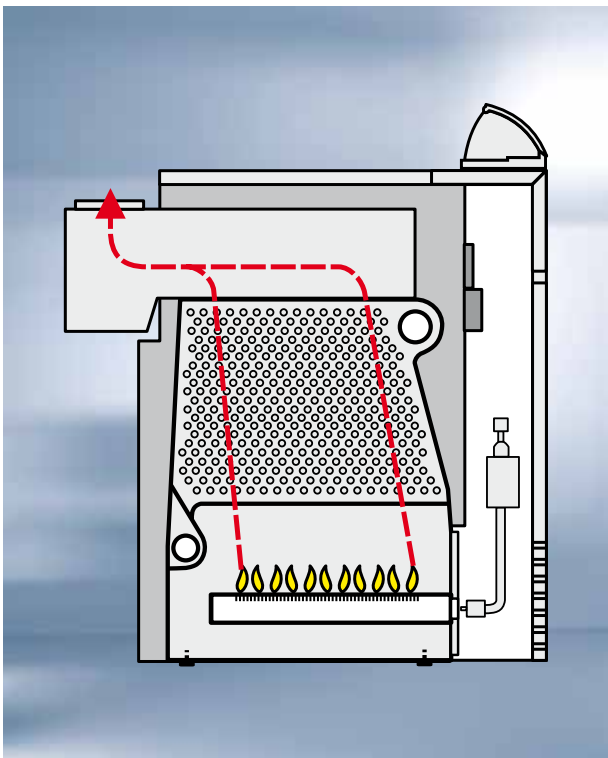
Height of feet/adjustment screws 20 mm ± 10 mm to be taken into account!



Gas-fired boiler in accordance with valid EC directives with intermitted ignition.

Gas-fired boiler NG-31E

NG-31E with atmospheric burner 40-110 kW

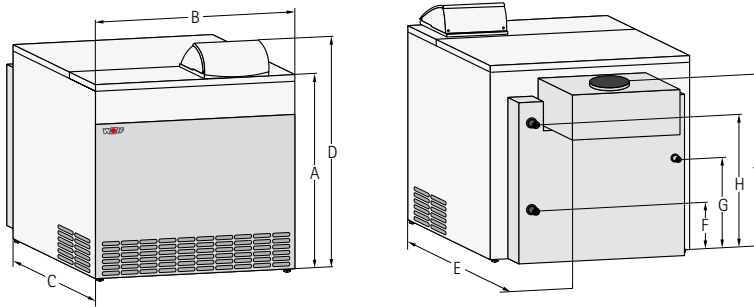


- Gas-fired boiler in accordance with valid EC directives with intermittent ignition and atmospheric burner for natural gas E, natural gas LL and LPG propane/butane (category II_{2ELL3B/P}) type (construction type B₁₁ bzw. B_{11BS} (with flue-gas monitoring as accessory) Capacity range 40-110 kW
- Ultra-low-pollutant combustion without flame cooling
- DVGW-Quality label
- High normative efficiency: up to 95% (Hi) / 86% (Hs) for the best possible energy utilisation
- Nubbled cast iron block to maximize the heat exchanger surface area
- Snug-fitted thermal insulation, amply dimensioned
- Combustion chamber with water jacket for minimum radiation heat losses
- Two-stage gas burner of heat resistant stainless steel
- Six-year guarantee on boilers, two-year guarantee on electrical and moving parts

Delivery standards

Cast iron block fully assembled, complete with gas burner. Casing, draught security device and small items on pallet with cast iron block. Control unit boxed separately.

Technical Data



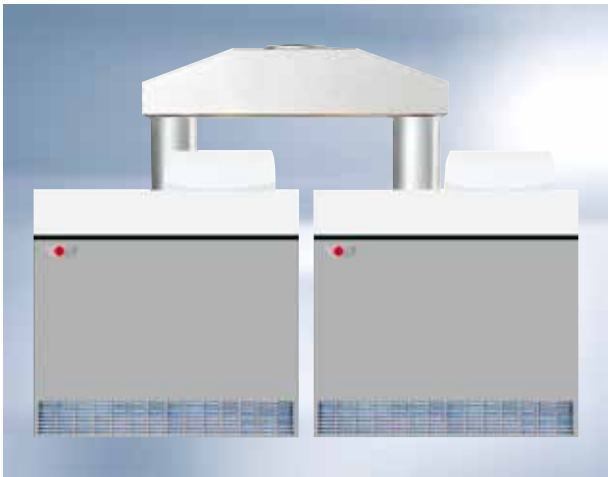
Type	NG-31E	70	90	110
Output 1st burner stage ¹⁾	kW	40,2	50,5	59,9
Charge 1st burner stage ¹⁾	kW	42,5	53,5	63,3
Output 1st + 2nd burner stage ¹⁾	kW	70,0	90,0	110,0
Charge 1st + 2nd burner stage ¹⁾	kW	75,6	97,0	117,9
Height/height without casing	A mm	970/650	970/650	970/650
Width/width without casing	B mm	1025/880	1195/1050	1365/1220
Depth/depth without casing	C mm	750/740	750/740	750/740
Total height with control system	D mm	1145	1145	1145
Depth with draught security device	E mm	1030	1030	1030
Boiler return	F mm	220	220	220
Gas connection	G mm	550	550	550
Boiler flow	H mm	605	605	605
Draught safeguard	J mm	870	870	870
Flue-gas pipe internal diameter	mm	200	225	250
Recommended foundation	mm	1300x850*	1300x850*	1500x950*
Boiler return	R	1½"	1½"	1½"
Gas connection	Rp	1"	1"	1"
Boiler flow	R	1½"	1½"	1½"
Number of sections		9	11	13
Water capacity of boiler	Ltr.	37	45	53
Heat. water resist. (at Δt = 20K)	mbar	8	12	18
Max. boiler overpressure	bar	4	4	4
Max. permissible flow temperature ²⁾	°C	120	120	120
Relative stand-by loss	%	1,5	1,4	1,3
Required pressure of heat generator	Pa	3	3	3
Gas connecting pressure Nat. gas E and Nat. gas LL	mbar	20	20	20
Gas connecting pressure LPG propane and butane	mbar	50	50	50
Flue-gas temperature ³⁾	°C	63 / 93	64 / 97	67 / 97
Flue-gas mass flow ³⁾	g/s	43 / 53	58 / 72	69 / 88
CO ₂ content at nominal capacity Natural gas E ³⁾	%	3,9 / 5,8	3,6 / 5,4	3,6 / 5,4
Weight Boiler	kg	318	381	444
Electricity supply		230V / 50Hz / 10A		
CE ID number		CE-0085AS0012		

¹⁾The unit is provided primarily for LPG type butane. With pure propane the values are lower by about 12%.

²⁾Overheat safety cutout convertible: 120°C/110°C/100°C.

³⁾Figures for min. output 1st burner stage/max. output 1st + 2nd burner stage.

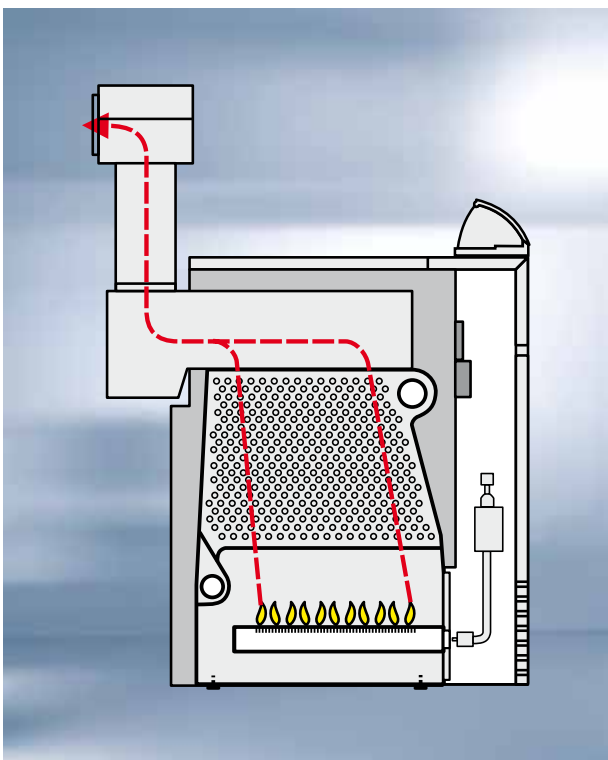
Height of feet/adjustment screws 20mm ±10mm to be taken into account!



Gas-fired boiler in accordance with valid EC directives with intermittent ignition.

Gasheizkessel NG-31ED

NG-31ED with atmospheric burner 40-220 kW

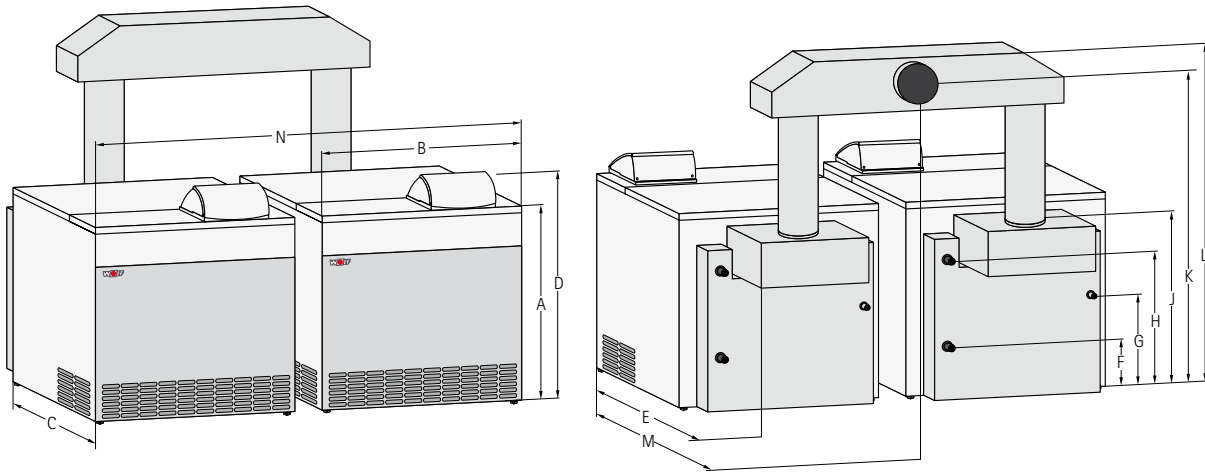


- Gas-fired boiler in accordance with valid EC directives with intermittent ignition and atmospheric burner for natural gas E, natural gas LL und LPG propane/butane (category II_{22ELL3B/P}) type (construction type) B₁₁ or B_{11B5} (with flue-gas monitoring as accessory)
Capacity range 40-220 kW
- Ultra-low-pollutant combustion without flame cooling
- DVGW-Quality label
- High normative efficiency: up to 95% (Hi) / 86% (Hs) for the best possible energy utilisation
- Nubbled cast iron block to maximize the heat exchanger surface area
- Snug-fitted thermal insulation, amply dimensioned
- Combustion chamber with water jacket for minimum radiation heat losses
- Both boilers with two-stage gas burner of heat resistant stainless steel
- Six-year guarantee on boilers, two-year guarantee on electrical and moving parts

Delivery standards

Cast iron block fully assembled, complete with gas burner. Casing, draught security device and small items on pallet with cast-iron block. Flue-gas collector with flue-gas connection and control unit boxed separately.

Technical Data



Type	NG-31ED	140	180	220
Output 1st boiler + 1st burner stage ¹⁾	kW	40,2	50,5	59,9
Charge 1st boiler + 1st burner stage ¹⁾	kW	42,5	53,5	63,3
Output 1st + 2nd boiler and 1st + 2nd burner stage ¹⁾	kW	140,0	180,0	220,0
Charge 1st + 2nd boiler and 1st + 2nd burner stage ¹⁾	kW	151,2	194,0	235,8
Height/height without casing	A mm	970/650	970/650	970/650
Width/width without casing	B mm	1025/880	1195/1050	1365/1220
Depth/depth without casing	C mm	750/740	750/740	750/740
Height with control system	D mm	1145	1145	1145
Depth with draught security device	E mm	1030	1030	1030
Boiler return	F mm	220	220	220
Gas connection	G mm	550	550	550
Boiler flow	H mm	605	605	605
Draught safeguard	J mm	870	870	870
Flue-gas pipe connection	K mm	1410	1430	1460
Total height	L mm	1630	1680	1730
Depth with flue-gas collector	M mm	1030	1030	1055
Total width	N mm	2100	2440	2780
Flue-gas pipe internal diameter	mm	250	300	350
Recommended foundation	mm	2 Pieces 1300x850*	2 Pieces 1300x850*	2 Pieces 1500x950*
Boiler return ²⁾	R	1½"	1½"	1½"
Gas connection ²⁾	Rp	1"	1"	1"
Boiler flow ²⁾	R	1½"	1½"	1½"
Number of sections ²⁾		9	11	13
Water capacity of boiler	Ltr.	2 x 37	2 x 45	2 x 53
Heating water resistance (at Δt = 20K) ²⁾	mbar	8	12	18
Max. permissible flow temperature	bar	4	4	4
Max. boiler overpressure (gauge) ³⁾	°C	120	120	120
Relative stand-by loss	%	1,5	1,4	1,3
Required pressure of heat generator	Pa	5	5	5
Gas connecting pressure Nat. gas E and Nat. gas LL	mbar	20	20	20
Gas connecting pressure LPG propane and butane	mbar	50	50	50
Flue-gas temperature ⁴⁾	°C	63 / 93	64 / 97	67 / 97
Flue-gas mass flow ⁴⁾	g/s	43 / 105	58 / 144	69 / 176
CO ₂ content at nominal capacity Natural gas E ⁴⁾	%	3,9 / 5,8	3,6 / 5,4	3,6 / 5,4
Weight Boiler	kg	2 x 318	2 x 381	2 x 444
Electricity supply		230V / 50Hz / 10A		
CE ID number		CE-0085AS0012		

¹⁾ The unit is provided primarily for LPG type butane. With pure propane the values are lower by about 12%.

²⁾ Values refer to single boilers

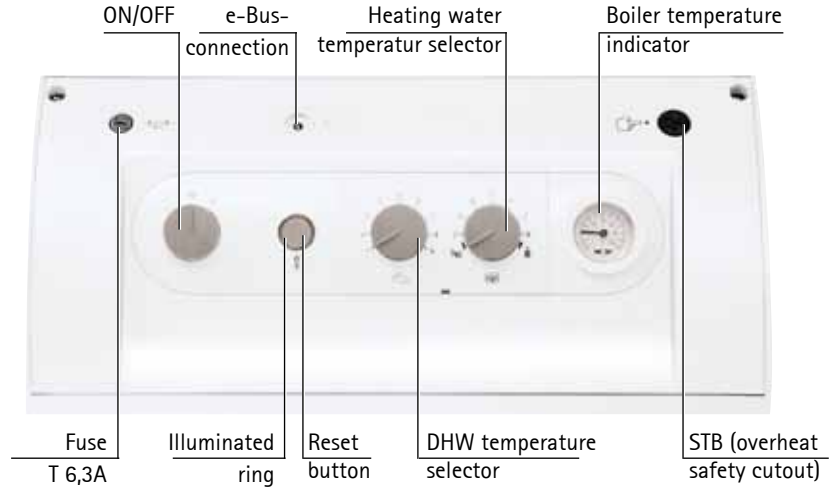
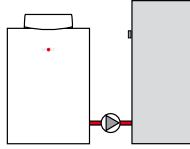
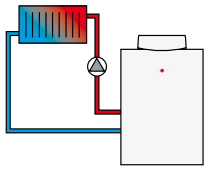
³⁾ Overheat safety cutout convertible: 120°C/110°C/100°C.

⁴⁾ Figures for min. output 1st burner stage / max. output 1st and 2nd burner stage.

Height of feet/adjustment screws 20mm ±10mm to be taken into account!

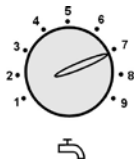
Control Unit R21

Control unit for boilers and boilers with cylinders for 2-stage and modulating burners.



Illuminated indicator ring as status display

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



DHW temperature selector

For boilers in combination with a cylinder the setting range 1 - 9 corresponds to a cylinder temperature of 15 to 60 °C. Combined with a BM programming module, the adjustment at the DHW temperature selector is disabled; instead the temperature is selected at the BM programming module.



Heating water temperature selector

The setting range 2 - 8 corresponds to a heating water temperature of 50 to 75 °C as standard. Combined with a BM programming module, the adjustment at the heating water temperature selector is disabled. If required the minimum boiler water temperature may be decreased to 38 °C on the BM programming module for oil-fired operation.

Settings




Winter mode (position 2 to 8)

The circulation pump operates in heating mode.




Summer mode

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



Emissions test mode

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

Overheat safety cutout STB

Convertible 120°C / 110°C / 100°C, optional: Control unit R21 with 2nd STB

In combination with BM programming module:

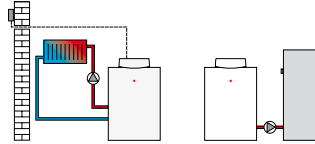
- programmable output for DHW circulation pump, alarm device etc.
- programmable input for room thermostat, DHW circulation push button etc.
- 0 - 5 V input for BMS (set value for boiler temperature)

Control accessories

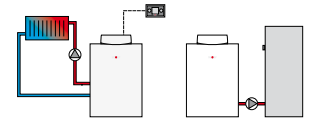


Control unit R 21

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



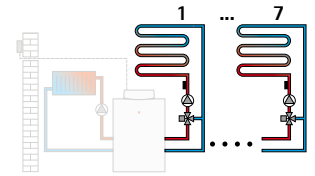
**BM programming module
with wall mounting base (accessory)
as room control thermostat**



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

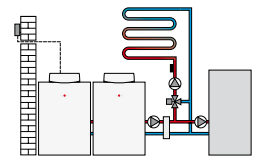
MM mixer module

- Extension module for regulating one mixer circuit
- Weather-compensated flow temperature control
- Applicable either for SHW preparation or return temperature boost of the boiler
- Easy configuration of the controller through selection of pre-defined system options
- Programming module BM may either be plugged in or used as remote control with wall mounting base
- Incl. flow temperature sensor
- eBus interface with automatic energy management
- Rast-5 connection technology



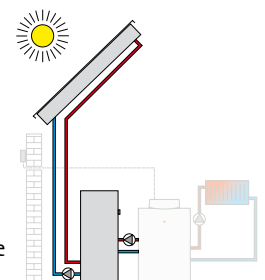
Cascade module KM

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



Solar module SM1

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



Two-wire eBUS cable



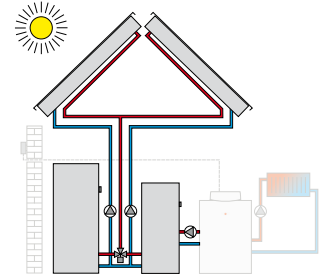
Control accessories

Two-wire eBUS cable



Solar module SM2

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



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



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



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



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



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



WRS-Remote service system
for direct or remote access to the control system via PC and for transferring fault text messages.
Consisting of: Interface module ISM1 and remote service software „WRS-Soft“

NB

In order to prevent the return temperature from falling below 30 °C with oil-fired systems and 40 °C with gas-fired systems during the reheating process of low temperature heating systems and heating systems with high water capacities, a return temperature boost is to be provided. If the boiler temperature controller is set to 90 °C the overheat safety cutout (STB) must not be converted to 100 °C.

Specification

Item	Pcs.		Unit price	Total price																
		<p>Oil/gas-fired steel boiler MKS for low temperature operation in accordance with DIN 4702 / EN 303 as well as with valid CE-regulations, for hot water heating systems with heating circuit pumps in accordance with DIN EN 12828, suitable for continuously reducing boiler temperature to 38°C with oil-fired boilers and 50°C with gas-fired boilers.</p> <p>Boiler body made of steel, boiler door for left and right opening with sight glass and blow-off connection, sheet steel casing with powder coating, insulation material, cleaning brush.</p> <p>Accessories: Electronic boiler sensor Terminal box for low-water protection, safety pressure relief, extraneous-pressure monitor. Return temperature controller for boosting pump. Flue-gas pipe 500mm / 1000mm long Flue-gas pipe bend 45° / 90° with soot door Flue-gas heat exchanger</p> <table border="0"> <tr> <td>Boiler type:</td> <td>MKS</td> <td>Width</td> <td>..... mm</td> </tr> <tr> <td>Output range</td> <td>kW.....</td> <td>Height</td> <td>..... mm</td> </tr> <tr> <td>Manufacture</td> <td>Wolf</td> <td>Depth</td> <td>..... mm</td> </tr> <tr> <td></td> <td></td> <td>Weight</td> <td>..... kg</td> </tr> </table>	Boiler type:	MKS	Width mm	Output range	kW.....	Height mm	Manufacture	Wolf	Depth mm			Weight kg		
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Manufacture	Wolf	Depth mm																	
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		<p>Oil/gas-fired cast iron boiler MK-1/MK-2 in accordance with DIN 4702 / EN 303 as well as with valid CE-regulations, for hot water heating systems with heating circuit pumps in accordance with DIN EN 12828, suitable for continuously reducing boiler temperature to 38°C with oil-fired boilers and 50°C with gas-fired boilers.</p> <p>Boiler body with three-pass system made of durable cast iron, boiler door for left and right opening made of cast iron with sight glass and blow-off connection, sheet steel casing with powder coating, insulation material, cleaning brush.</p> <p>Accessories: Electronic boiler sensor Terminal box for low-water protection, safety pressure relief, extraneous-pressure monitor. Return temperature controller for boosting pump. Flue-gas pipe 500mm / 1000mm long, Flue-gas pipe bend 45° / 90° with soot door Compression tool</p> <table border="0"> <tr> <td>Boiler type:</td> <td>MK-1/MK-2.....</td> <td>Width</td> <td>..... mm</td> </tr> <tr> <td>Output range</td> <td>kW.....</td> <td>Height</td> <td>..... mm</td> </tr> <tr> <td>Manufacture</td> <td>Wolf</td> <td>Depth</td> <td>..... mm</td> </tr> <tr> <td></td> <td></td> <td>Weight</td> <td>..... kg</td> </tr> </table>	Boiler type:	MK-1/MK-2.....	Width mm	Output range	kW.....	Height mm	Manufacture	Wolf	Depth mm			Weight kg		
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Output range	kW.....	Height mm																	
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		Weight kg																	

Specification

Item.	Pcs.	<p>Gas-fired boiler NG-31 E in accordance with DIN EN 297 / DIN EN 437 for low temperature operation, CE-label in accordance with valid CE-regulations.</p> <p>High performance cast iron body in segments with water-cooled combustion chamber, vertical cast iron segments, vertical flue-gas passes, overall insulation with highly efficient mineral wool. Draught safeguard fitted, with vertical flue-gas connection, 2-stage atmospheric pre-mix burner of stainless steel for natural gas E, natural gas LL und LPG Propane/Butane. Ex-works equipped for natural gas E.</p> <p>Control system with burner control unit and intermittent ignition for a maximum ignition reliability, gas governor and two gas combination valves opening gradually, with measuring nipple for connecting pressure. Sheet steel casing with powder coating.</p> <p>Accessories: Electronic boiler sensor Terminal box for low-water protection, safety pressure relief, extraneous-pressure monitor. Return temperature controller for boosting pump. Flue-gas pipe 500mm / 1000mm long, Flue-gas pipe bend 45° / 90° with soot door Motorized flue-gas damper, conversion kit for natural gas LL, conversion kit for LPG Propane/Butane Flue-gas monitoring, gas ball valve with thermal shut-off valve</p> <table border="0"> <tr> <td>Boiler type:</td> <td>NG-31E.....</td> <td>Width</td> <td>..... mm</td> </tr> <tr> <td>Output range</td> <td>kW.....</td> <td>Height</td> <td>..... mm</td> </tr> <tr> <td>Manufacture</td> <td>Wolf</td> <td>Depth</td> <td>..... mm</td> </tr> <tr> <td></td> <td></td> <td>Weight</td> <td>..... kg</td> </tr> </table> <th data-bbox="1230 315 1315 338">Unit price</th> <th data-bbox="1347 315 1431 338">Total price</th>	Boiler type:	NG-31E.....	Width mm	Output range	kW.....	Height mm	Manufacture	Wolf	Depth mm			Weight kg	Unit price	Total price
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		<p>Gas-fired boiler NG-31ED in accordance with DIN 297/DIN EN 437 for low temperature operation, CE-label in accordance with valid CE-regulations.</p> <p>High performance cast iron body in segments with water-cooled combustion chamber, vertical cast iron segments, vertical flue-gas passes, overall insulation with highly efficient mineral wool. Draught safeguard fitted, with horizontal flue-gas connection, 2-stage atmospheric pre-mix burner of stainless steel for natural gas E, natural gas LL und LPG Propane/Butane. Ex-works equipped for natural gas E.</p> <p>Control system with burner control unit and intermittent ignition for a maximum ignition reliability, gas governor and two gas combination valves opening gradually, with measuring nipple for connecting pressure. Sheet steel casing with powder coating, flue-gas collector flamealuminized with two flue-gas connections.</p> <p>Accessories: Electronic boiler sensor Terminal box for low-water protection, safety pressure relief, extraneous-pressure monitor. Return temperature controller for boosting pump. Flue-gas pipe 500mm / 1000mm long, Flue-gas pipe bend 45° / 90° with soot door Motorized flue-gas damper, conversion kit for natural gas LL, conversion kit for LPG Propane/Butane Flue-gas monitoring, gas ball valve with thermal shut-off valv</p> <table border="0"> <tr> <td>Boiler type:</td> <td>NG-31ED.....</td> <td>Width</td> <td>..... mm</td> </tr> <tr> <td>Output range</td> <td>kW.....</td> <td>Height</td> <td>..... mm</td> </tr> <tr> <td>Manufacture</td> <td>Wolf</td> <td>Depth</td> <td>..... mm</td> </tr> <tr> <td></td> <td></td> <td>Weight</td> <td>..... kg</td> </tr> </table>	Boiler type:	NG-31ED.....	Width mm	Output range	kW.....	Height mm	Manufacture	Wolf	Depth mm			Weight kg		
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