Description

Hoval BioLyt

Boiler
- Steel boiler for the combustion of wood pellets of Ø 6 mm, max. length 30 mm
- Including pellet hopper which can be filled manually or automatically
- Pellet metering screw with rotary valve for fuel supply
- Electric heating element for automatic ignition
- Fully automatic removal of ash from the burner
- Burner made from highly heat-resistant stainless steel
- Microprocessor-controlled combustion regulation with combustion chamber temperature sensor and lambda probe
- Infinitely variable pressure and induced draught fan for modulating power adjustment
- Negative pressure monitor in the combustion chamber
- Automatic heating surface cleaning
- Fully automatic ash discharge
- Heating connections and flue gas outlets to the rear
- Thermal insulation on the boiler body with 80 mm mineral wool mat
- Casing made from sheet steel, red powder-coated
- No thermal discharge safety device required

Boiler controller TopTronic®T/U5.2
- Automatic firing device with microcomputer technology
- Integrated control function for
  - 1 mixer circuit
  - Hot water loading circuit
- Optional expanded functionality with
  - various key modules (see Accessories)
- Safety temperature limiter
- Automatic operating system with display of the respective operating state
- Display field for the following temperatures: boiler, boiler return, flue gas, combustion chamber
- Return temperature control function
- Prepared for connection of the fully automatic pellet feed
- Electrical connection 230V, 50 Hz
- Fault display «Burner»
- Operating hours and pulse counter
- Outdoor sensor AF200
- Flow sensor (contact sensor VF204)
- Return sensor (cable sensor KVT 20/5/6)
- Calorifier sensor with plug
- Boiler sensor installed
- Connection available for room stations

Series BioLyt Type	Heat output kW
(8)	2,1 - 7,9
(13)	3,9 - 13,0
(15)	4,4 - 14,9
(23)	6,5 - 23,0
(25)	7,3 - 24,9
(31)	8,7 - 31,0
(36)	9,8 - 36,0

Tested to EN 303-5.

Design on request
- Fully automatic pellet feed comprising:
  - Feed unit with suction turbine and controller
  - Automatic switchover unit
  - 3 suction probes
  - Conveyor and return air hose.

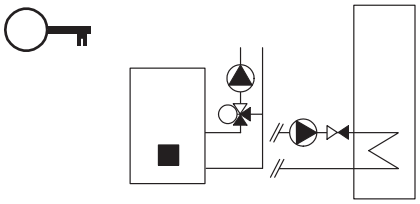
  The pellet feed fills the pellet hopper of the BioLyt with pellets from the storage area fully automatically via a maintenance-free suction turbine. Filling is controlled via a filling level switch and a timer. Removal of the pellets from the storage area is effected via 3 switchable suction probes, so that the storage area can be practically completely emptied.
- Accessories for filling with pellets from a tanker

Fabric tank for pellets and "mole" extraction system
see end of this brochure

Delivery
- Boiler with thermal insulation, casing, burner, pellet hopper and ash box as well as boiler controller are delivered in separate packaging.

On site
- Installation of the boiler (bottom section and heat exchanger)
- Installation of burner and pellet hopper
- Installation of boiler controller
- Installation of the casing

■ **Part N°**



Pellet boiler Hoval BioLyt — Part N°

Steel boiler for the combustion of wood pellets, with integrated TopTronicT/U5.2 basic boiler controller and heating regulator incl. sensor.
Integrated control function for:
- 1 mixer circuit
- hot water loading circuit

Optional expanded functionality with key modules.

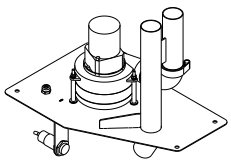
With pellet hopper, automatic heating surface cleaning and fully automatic ash discharge.

Delivery
- Boiler, casing, burner, pellet hopper, ash box and boiler controller are delivered separately packed.

BioLyt Type	Nominal output kW	Pellet length, max. mm	Pellet Ø mm	Pellet hopper content kg	
(8)	2,1 - 7,9	30	6	90	7010 373
(13)	3,9 - 13,0	30	6	90	7010 374
(15)	4,4 - 14,9	30	6	90	7010 375
(23)	6,5 - 23,0	30	6	90	7010 376
(25)	7,3 - 24,9	30	6	90	7010 377
(31)	8,7 - 31,0	30	6	90	7010 378
(36)	9,8 - 36,0	30	6	90	7010 379

Extraction system
Automatic conveyance of pellets from the storage area into the pellet hopper of the BioLyt. Comprising feed unit RAS 81 for suction system with suction probes, screw discharge or mole. Maximum distance:

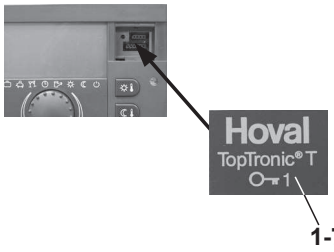
Transport length [m]	max. possible delivery height [m]
15 to 25	1.8
10 to 15	2.8
5 to 10	4.5

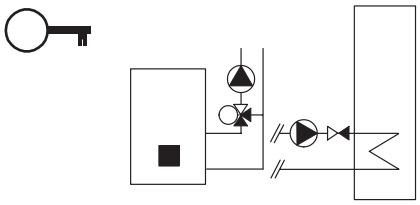


Feed unit RAS 81 — 6027 958
For installation into the pellets box at the boiler.
Consisting of maintenance-free suction turbine with mounting flange and level indicator.

Switchover unit and pellet storage systems
see Pellets storage

■ **Part N°**





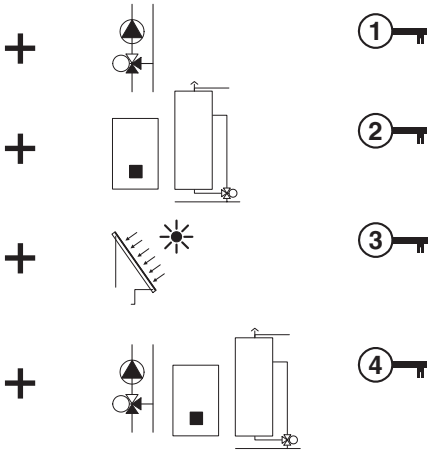
Accessories for TopTronic®T heating regulation system	Part N°

Key modules for the Hoval TopTronic®T
for further functions in addition
to the standard functions.
Key module consisting of:
Function key for insertion in the TopTronic®T
including accessories
Only one key module possible per controller!

Standard functions
already included in the TopTronic®T.
- 1 mixer circuit
- hot water loading circuit

Functions of the key modules

Key module	2nd mixer circuit	Solid/buffer/ bivalent	Solar
1	●		
2		●	
3			●
4	●	●	
5	●		●
6		●	●
7	●	●	●



Key module 1 6012 154
for 2nd mixer circuit
Function key 1, 1 flow sensor, 2 loose plugs

Key module 2 6012 155
for solid fuel/ buffer storage tank/ bivalent installation
Function key 2, 3 immersion sensors, 4 loose plugs

Key module 3 6012 156
for solar energy systems
Function key 3, 1 collector sensor, 1 calorifier sensor, 4 loose plugs

Key module 4 6012 157
for 2nd mixer circuit and solid fuel/ buffer storage tank/ bivalent installation
Function key 4, 1 flow sensor, 3 immersion sensors, 6 loose plugs

Key module 5 6012 158
for 2nd mixer circuit and solar energy system
Function key 5, 1 flow sensor, 1 collector sensor, 1 calorifier sensor, 6 loose plugs

Key module 6 6012 159
for solid fuel/buffer storage tank/bivalent installation and solar energy system
Function key 6, 1 collector sensor, 4 immersion sensors, 6 loose plugs

Key module 7 6012 160
for 2nd mixer circuit, solid fuel/buffer storage tank/ bivalent and solar energy system
Function key 7, 1 flow sensor, 1 collector sensor, 4 immersion sensors, 8 loose plugs

Sensor types
Immersion/calorifier sensor: Type KVT20/5/6 (L = 5 m)
without immersion sleeve
Flow sensor : Type VF204S with plug
Collector sensor : Type PT1000 (silicon)

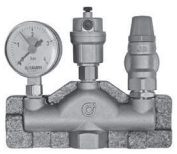
System solutions and applications
see Hoval CD

■ **Part N°**

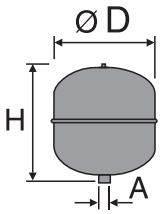
	Accessories for TopTronic®T heating regulation system	Part N°
	**Room station RS-T** for TopTronic®T effective on one mixing circuit	2034 939
	**Remote control RFF-T** for TopTronic®T effective on one mixing circuit	2022 239
	**Outdoor sensor AF 200** (may be included in the heat generator scope of delivery) for one mixing circuit or for the mean value (per regulator 2 outdoor temperature sensors possible)	2022 995
	**Cable sensor KVT 20/5/6** with 5 m cable	2022 992
	**Contact sensor VF204** can be used as flow or return flow sensor with 4 m cable	2023 998
	H_Strap-on-/immers.therm.RAK-TW.1000S-HV	2429 02
	Thermostat RAK-TW1000S w. immersion sl.	6010 082

Part N°

Accessories	Part N°

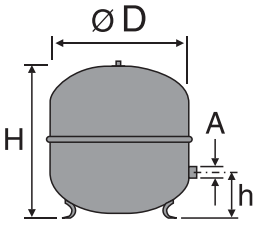


Safety set SG15-1" 6411 84
Suitable up to max. 50 kW
complete with safety valve (3 bar)
Pressure gauge and automatic air vent
with cut off valve
Connection: 1" internal thread

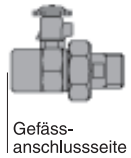


Pressure expansion tank
Reflex NG

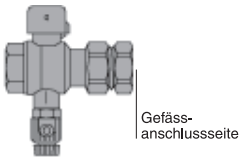
with threaded connections,
permissible operating temperature 70 °C
Pre-pressure 1.5 bar
permissible operating overpressure 6 bar



Type	Colour	ø D mm	H mm	h mm	A	
NG25	rot	280	465	-	R¾"	2427 91
NG35	rot	354	460	130	R¾"	2427 92
NG50	rot	409	493	175	R¾"	2026 088
NG80	rot	480	565	175	R1"	2026 089
NG100	rot	480	670	175	R1"	2026 090
NG140	rot	480	912	175	R1"	2026 091



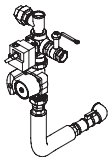
Quick connection SU R¾ x ¾ 2427 71
for diaphragm-type expansion chambers in
closed heating and cooling water plants.
With shut-off valve against unintended
closing (check ball) and drain according
to DIN 4751 Part 2,
tested by TÜV
Connection R ¾"



Quick connection SU R 1 x 1 2427 72
for diaphragm-type expansion chambers in
closed heating and cooling water plants.
With shut-off valve against unintended
closing (check ball) and drain according
to DIN 4751 Part 2
tested by TÜV
Connection R 1" PN10/120 °C

Further vessels
see separate brochure

■ **Part N°**



Accessories	Part N°
Return temperature control group DN25 to increase the return temperature With 3-way motor mixer and high-efficiency Biral pump, wired and ready-to-connect Ball valves in the plant flow/return Thermometer/valve in the boiler return Insulated piping Complete with fittings for final assembly on the boiler connection Connection: Rp 1" or 1¼" Pump enclosed separately.	
for BioLyt (8,13) DN25 Biral pump AX12-1 mixer: kvs 12m³/h	6032 421
for BioLyt (15,23) DN25 Biral pump AX13-1 mixer: kvs 12m³/h	6032 422
for BioLyt (25,36) DN32 Biral pump AX13-1 mixer: kvs 18m³/h	6032 453

Return temperature control kit DN25 for BioLyt (8-23) Consisting of: 3-way motor mixer High-efficiency Biral pump AX12-1	6027 842

Return temperature control kit DN25 for BioLyt (15,23), AgroLyt® (20,25) for return flow temperature increase Consisting of: 3-way motor mixer kvs: 12 m³/h High-efficiency Biral pump AX13-1	6032 419

Return temperature control kit DN32 for BioLyt (25-36), AgroLyt® (35,50) for return flow temperature increase Consisting of: 3-way motor mixer kvs: 18 m³/h High-efficiency Biral pump AX13-1	6027 843

Part N°

Accessories	Part N°
 **Flue gas thermometer with drag indicator** Ø 5 / 80x150 mm (mounting on site) Range of indication 100°C - 500°C	2412 37
Three way valve B3G460 PN 10, 110°C, DN 32 case, shaft and segment made of brass maintenance-free O-ring seal Mounting optionally on left or right side kvs value 18 m^3/h	2039 170
 **Actuator NR230-E-20** for three-way valve B3G460 Operating voltage 230V/50Hz Single wire control Torque 10 Nm Actuation time 140 s manual/automatic positioning reversible direction of rotation and scale for position indicator 0...10 1 cable (2 m) for actuator mounted on the drive. Complete with assembly material	2452 35
 **Damper ZET 13** for BioLyt (8-23) Damper EZ with explosion door and T-piece of stainless steel 90°. Inner Ø 130 mm	6411 61
 **Damper ZET 15** for BioLyt (25-36), (50,70) Damper EZ with explosion door incl. T-piece of stainless steel 90°. Inner Ø 150 mm	6008 032

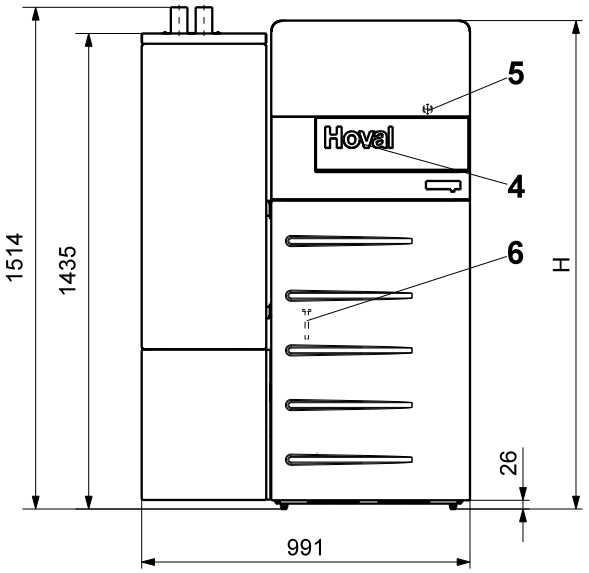
Technical data

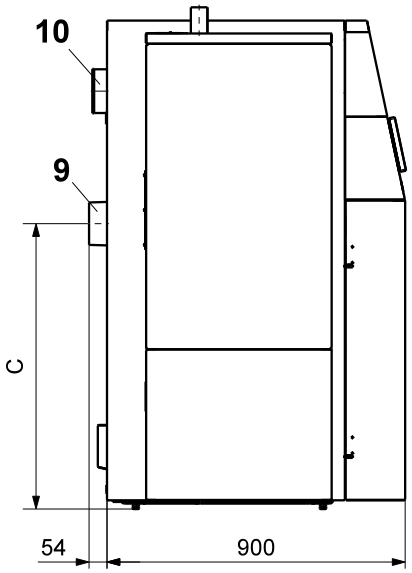
Type			(8)	(13)	(15)	(23)	(25)	(31)	(36)
• Nominal heat output		kW	7,9	13,0	14,9	23,0	24,9	31,0	36,0
• Firing capacity with nominal heat output		kW	8,3	13,7	15,6	24,2	26,3	32,3	37,5
• Heat output range		kW	2,1-7,9	3,9-13,0	4,4-14,9	6,5-23,0	7,3-24,9	8,7-31,0	9,8-36,0
• Pellets	Ø	mm	6	6	6	6	6	6	6
	Length	mm	5-30	5-30	5-30	5-30	5-30	5-30	5-30
• Maximum boiler flow temperature		°C	75	75	75	75	75	75	75
• Minimum boiler operating temperature		°C	60	60	60	60	60	60	60
• Minimum boiler return temperature without/with buffer		°C	20/40	20/40	20/40	20/40	20/40	20/40	20/40
• Flue gas temperature at nominal heat output		°C	120	120	120	120	120	120	120
• Flue gas temperature at lowest heat output		°C	90	90	90	90	90	90	90
• Carbon dioxide CO_2 at nominal output		%	11	11	12	12	13	13	13
• Operating/test pressure		bar	3,0/4,5	3,0/4,5	3,0/4,5	3,0/4,5	3,0/4,5	3,0/4,5	3,0/4,5
• Boiler efficiency at nominal heat output		%	>93	>93	>93	>95	>95	>95	>95
• Flue gas mass flow at nominal output Pellet moisture content 10 %		kg/h	20,3	33,5	35,5	53,6	54,0	67,3	79,1
• Flue gas mass flow rate at lowest nominal output		kg/h	7,1	12,5	12,2	18,0	19,4	23,2	26,1
• Flow resistance wood pellet boiler		z-value	13	13	19	19	9	9	9
• Hydraulic resistance at 10 K		mbar	6	12	34	56	40	63	66
• Hydraulic resistance at 20 K		mbar	2	4	10	15	11	17	18
• Water flow rate at 10 K		m³/h	0,69	1,12	1,29	1,97	2,15	2,66	3,09
• Water flow rate at 20 K		m³/h	0,34	0,56	0,65	0,99	1,08	1,33	1,55
• Boiler water content		litres	40	40	52	52	78	78	78
• Pellet hopper capacity		kg	90	90	90	90	90	90	90
• Ash chamber content		litres	28	28	28	28	28	28	28
• Thickness of thermal insulation on boiler body		mm	80	80	80	80	80	80	80
• Boiler weight incl. casing		kg	360	360	390	390	440	440	440
Flue gas system [1]									
• Minimum boiler draughting requirements		Pa	5 (1) [2]	5 (1) [2]	5 (1) [2]	5 (1) [2]	5 (1) [2]	5 (1) [2]	5 (1) [2]
• Electrical power consumption during operation		watts	33	46	57	107	118	141	160
• Electrical power consumption during ignition		watts	300	300	300	300	300	300	300
• Electrical power consumption during standby		watts	10	10	10	10	10	10	10
Fully automated pellet feed (only in operation alternating with wood pellet boiler)									
• Electrical power consumption during pellet feed		watts	1900	1900	1900	1900	1900	1900	1900
• Maximum current consumption [3]		A	9	9	9	9	9	9	9

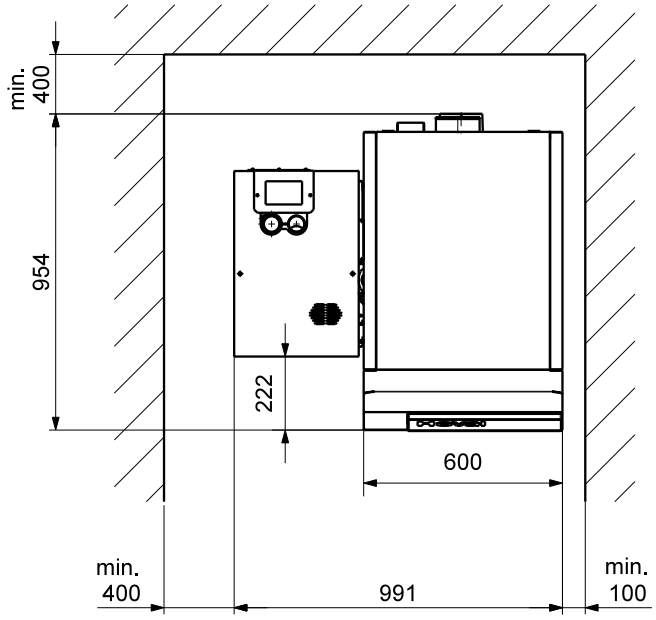
[1] A damper and explosion damper must be installed.
[2] In borderline cases, a draughting requirement of 1 Pa at lowest output can be assumed for calculation purposes.
[3] Fuse protection **min. 16 A** slow-blow due to operating current.

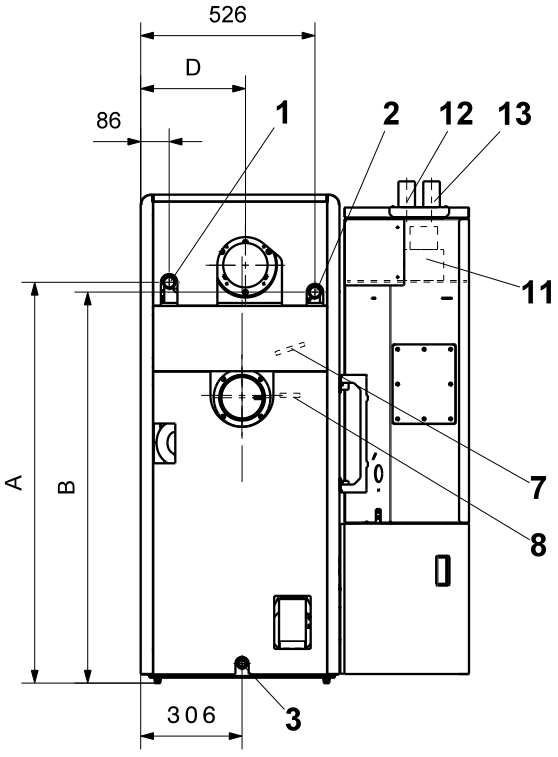
Dimensions

Space requirement
(dimensions in mm)









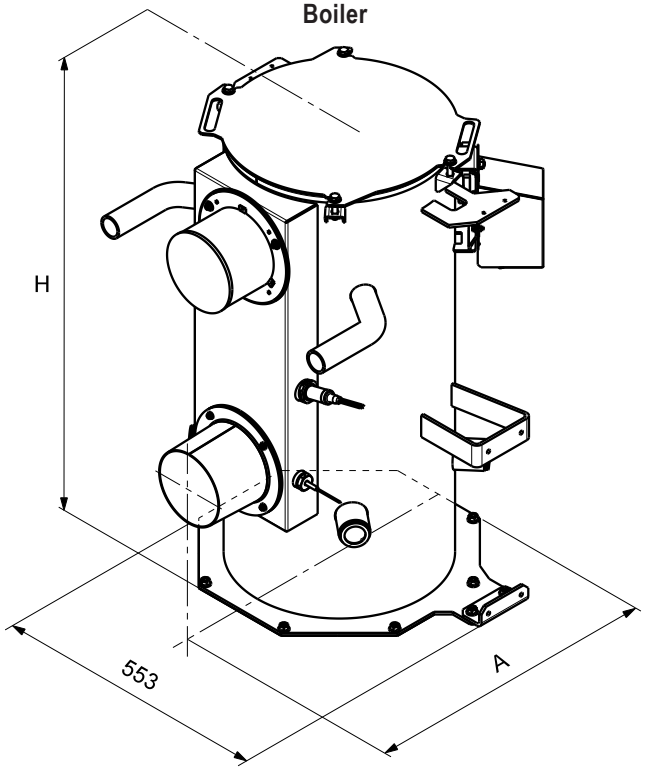
1	Boiler flow	(8-23) 1" / (25-36) 5/4"
2	Boiler return	(8-23) 1" / (25-36) 5/4“
3	Drain	½"
4	Boiler controller	
5	Boiler temperature sensor	
6	Boiler return sensor and STB	
7	Lambda probe	
8	Flue gas sensor	
9	Flue gas outlet	(8-23) Ø 128mm / (25-36) Ø 148 mm
10	Induced draught fan	
	Optional:	
11	Pellet feed suction turbine	
12	Connection for conveyor hose	Ø 50 mm
13	Connection for return air hose	Ø 50 mm

BioLyt	A	B	C	D	E	H
(8-13)	1010	996	1061	741	316	1274
(15-23)	1210	1180	1261	861	316	1474
(25-36)	1365	1254	1423	1042	311	1667

Dimensions

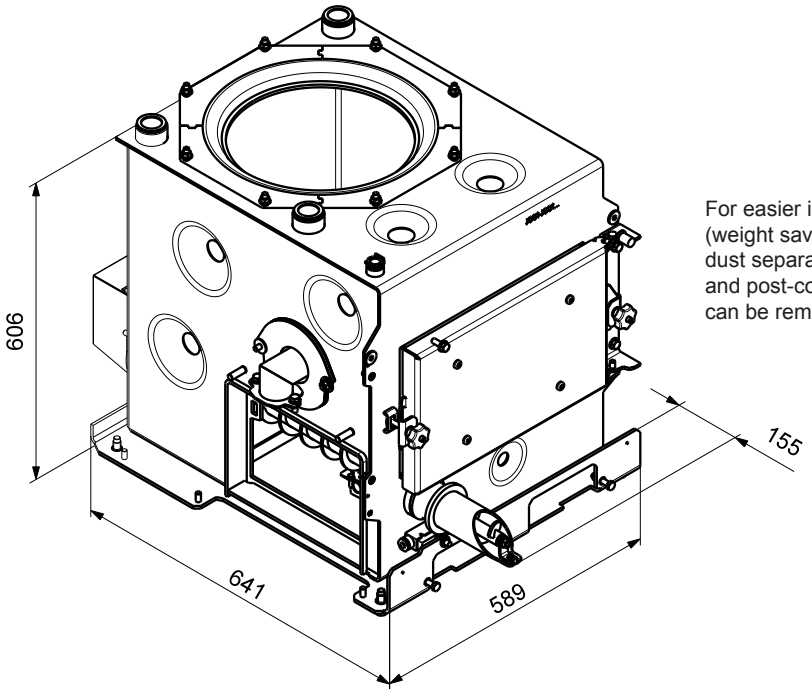
Overall unit dimensions
(dimensions in mm)

Boiler



BioLyt	H mm	A mm	Weight kg
(8-13)	600	534	85
(15-23)	800	534	104
(25-36)	985	570	148

Boiler bottom section
Weight 144 kg



For easier installation
(weight saving),
dust separators (6,7 kg)
and post-combustion ring (10,7 kg)
can be removed.

Engineering

Damper and explosion damper
The installation of a damper with deflagration flap (explosion damper) is mandatory.

Flue gas system
A moisture-resistant chimney is required. Draughting requirement 10 Pa. Route the connecting line (flue gas pipe) with an upward slope, maximum length 3 m. Provide thermal insulation of at least 30 mm for the flue gas pipe. Where possible, flue connection 45°. Do not wall in the flue gas pipe directly, but integrate it flexibly to avoid noise transmission. The flue gas pipe must be integrated in the flue gas duct in such a way that condensation cannot flow into the boiler.

Buffer storage tank
A small buffer storage tank optimises the operation of a pellet heating system and is recommended.
For over-dimensioned boilers (≥ 50 %) or in those cases where parts of the heat supply system are frequently disconnected or in the case of high passive solar input, a buffer storage tank is mandatory.

Selection of a buffer storage tank
Recommended minimum tank size at a nominal load less than 70% of the boiler nominal load or high passive solar input.

BioLyt Type	Tank volume approx. litres
(8-15)	200
(23,25)	300
(31,36)	500

In many cases, a buffer storage tank is necessary for water heating or integration of a solar energy system.
Recommended capacity: 10-30 litres/kW boiler output plus volume for water heating and solar energy system. Detailed dimensioning of the system is necessary.

Return temperature control
- Please observe the hydraulic example applications.

Water quality
Heating water:
- ÖNORM H5195, European Standard EN 14868 and VDI Guideline 2035 must be complied with.
- Hoval boilers and calorifiers are suitable for heating systems without significant oxygen intake (system type I in accordance with EN 14868).
- Systems with
  - **continuous** oxygen intake (e.g. underfloor heating systems without diffusion-proof plastic piping) or
  - **intermittent** oxygen intake (e.g. frequent topping-up required)

  must be equipped with **separate circuits**.
- Treated heating water must be tested at least 1x per year, or more frequently if prescribed by the manufacturer of the inhibitor.
- On existing systems (for example if the boiler is replaced), where the quality of the existing heating water meets the requirements of VDI 2035, re-filling of the system is not recommended. The requirements of VDI 2035 also apply to replacement water.
- Before filling new systems and, where necessary, existing systems, the heating system must be professionally cleaned and flushed! The boiler must not be filled until the heating system has been flushed.
- All parts of the boiler which come into contact with water are made of ferrous materials and stainless steel.
- Due to the danger of stress corrosion, the sum of the chloride, nitrate and sulphate contents of the heating water must not exceed a total of 50 mg/l (ÖNORM H5195 stipulates that the limit value for chlorides is 30 mg/l).
- The pH-value of the heating water should be between 8.3 and 9.5 after 6-12 weeks of heating operation.

Filling and replacement water:
- As a rule, untreated drinking water is best suited as filling and replacement water for a system with Hoval boilers. However, the quality of the untreated drinking water must still meet the requirements of VDI 2035 or be demineralised and/or treated with inhibitors. The requirements of EN 14868 must be met in this context.
- To maintain high boiler efficiency and prevent overheating of the heating surfaces, the values in Table 1 should not be exceeded, taking into consideration the boiler output (smallest individual boiler in multi-boiler plants) and the water content.
- The total quantity of filling and replacement water added to the boiler over its service life must not be higher than twice the system water content.

Combustion air supply
An adequate combustion air supply is a prerequisite for safe and economical operation. Free supply air cross-section at least 200 cm^2. It is very important to ensure that the combustion air is clean and free from halogen compounds. These are present, for example, in spray cans, varnishes, glues, solvents and cleansing agents.

Electrical connection
The boiler is only suitable for installation in dry rooms (protection rating IP 10).
Installation must be performed by an authorised electrician and in accordance with local regulations!
Electrical connection: 230 V, 50 Hz,
min. 16 A slow-blow.
Caution: Connect phases correctly!
An omnipolar main switch with a minimum contact spacing of 3 mm must be installed on-site, outside the boiler room.

Installation instructions
Please observe the installation instructions supplied with every boiler.

Pellet storage systems
see separate brochure

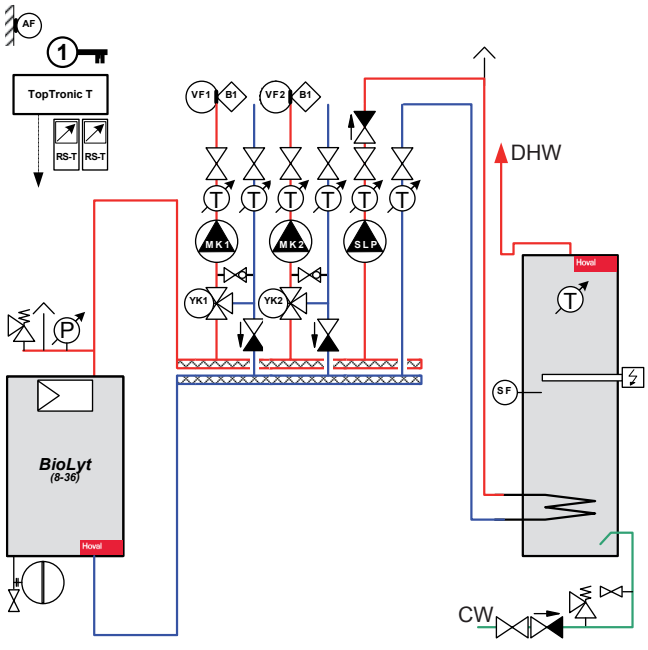
Table 1: Maximum filling quantity based on VDI 2035

	Total hardness of the filling water up to.....							
[mol/m^3] [1]	< 0.1	0.5	1	1.5	2	2.5	3	>3.0
f°H	< 1	5	10	15	20	25	30	>30
d°H	< 0.56	2.8	5.6	8.4	11.2	14.0	16.8	>16.8
e°H	< 0.71	3.6	7.1	10.7	14.2	17.8	21.3	>21.3
~mg/l	< 10	50.0	100.0	150.0	200.0	250.0	300.0	>300
Conductance [2]	< 20	100.0	200.0	300.0	400.0	500.0	600.0	>600
Size of the individual boiler	**maximum filling quantity without demineralisation**							
up to 50 kW	NO REQUIREMENT							20 l/kW

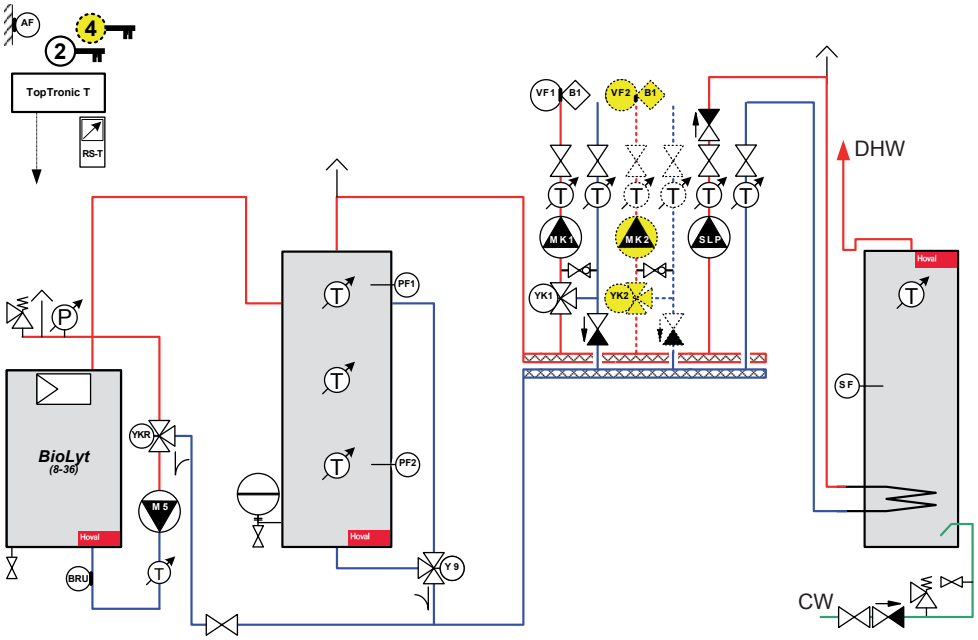
[1] Total alkaline earths
[2] If the conductance in µS/cm exceeds the value shown in the table, water analysis is required.

Examples

Hoval BioLyt with one or two heating groups and calorifier starting from distributor.
Hydraulic schematic BDFT020



Hoval BioLyt with constant return temperature control, buffer storage tank, one or two heating groups and calorifier starting from distributor.
Hydraulic schematic BDFT090



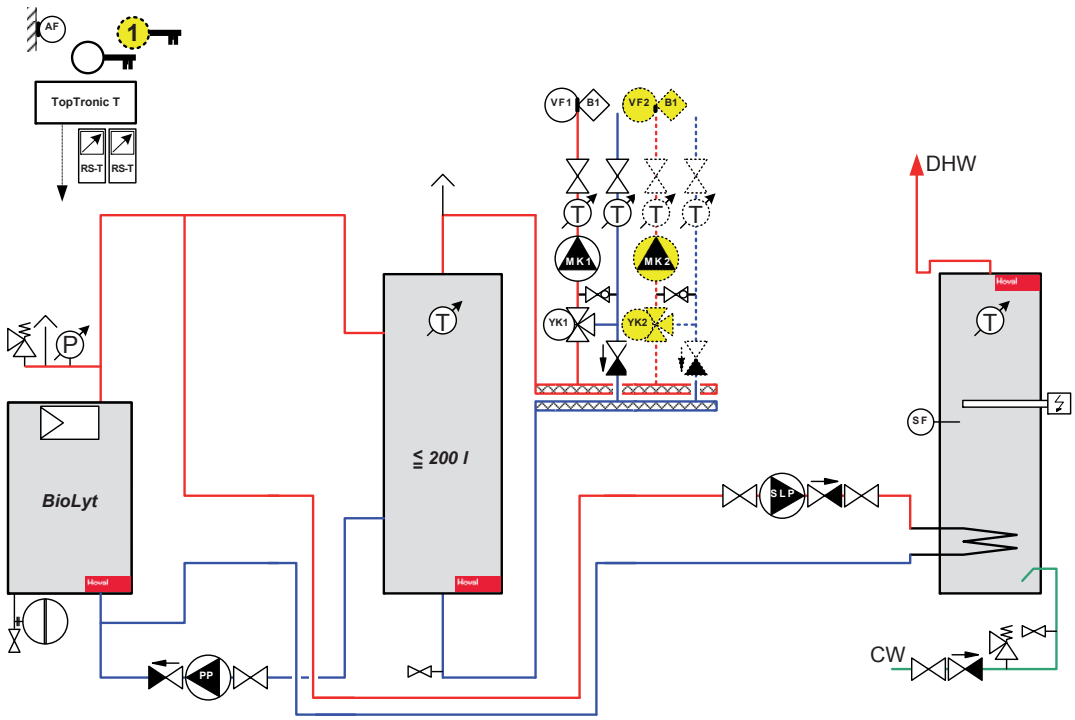
MC1	Pump, mixer circuit 1
MC2	Pump, mixer circuit 2
SLP	Calorifier charging pump
M5	Boiler circuit pump
YK1	Actuator, mixer 1
YK2	Actuator, mixer 2
YKR	Actuator, return mixer
Y9	Actuator, start load relief (single-wire control)
B1	Flow temperature controller (if required)
AF	Outdoor sensor
BRU	Return sensor (automatic firing device)
VF 1	Flow sensor 1
VF 2	Flow sensor 2
SF	Calorifier sensor
PF 1	Buffer temperature sensor 1
PF 2	Buffer temperature sensor 2
RS-T	Room station
CW	Cold water
DHW	Domestic hot water

Important notes

- The hydraulic schematic merely shows the basic principle and does not contain all information necessary for installation. Installation must be carried out according to the conditions on-site, dimensioning and local regulations.
- With underfloor heating, a flow temperature controller must be installed.
- Shut-off devices to the safety equipment (pressure expansion tank, safety valve, etc.) must be secured against unintentional closing!
- Install sacks to prevent single-pipe gravity circulation!

Examples

Hoval BioLyt with small buffer storage tank, one or two heating groups and calorifier starting from boiler
Hydraulic schematic BDFT070



MC1	Pump, mixer circuit 1
MC2	Pump, mixer circuit 2
SLP	Calorifier charging pump
PP	Primary pump
YK1	Actuator, mixer 1
YK2	Actuator, mixer 2
B1	Flow temperature controller (if required)
AF	Outdoor sensor
VF 1	Flow sensor 1
VF 2	Flow sensor 2
SF	Calorifier sensor
RS-T	Room station
CW	Cold water
DHW	Domestic hot water