

Installation and Operating Instructions

H₂O Fireplace Inserts / H₂O RLU Fireplace Inserts





PREFACE / QUALITY PHILOSOPHY

You have decided in favour of a Spartherm product - thank you for your trust in our company. In a world of excess and mass production, we hold to the motto:

"High technical quality combined with contemporary design and service to the satisfaction of our customers so they will recommend us to others."

Together with our retail partners we offer first-class products that have an emotional appeal and engender feelings of comfort and security. To achieve this, we recommend that you read the operating instructions carefully for a quick and comprehensive overview of your fireplace insert. In addition to information on operation, this manual also includes important instructions for care and maintenance to guarantee your safety and preserve the value of your fireplace insert, as well as useful tips and aids. Moreover, we show you how you can operate your product in an environmentally responsible manner.

For further enquiries, please contact your specialist dealer.

May your fire keep burning beautifully.

Your Spartherm Team

G.M. Rokossa

G. M. Rokossa.

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1. GENERAL INSTRUCTIONS

Please consult your district master chimney sweep before assembling and installing the H₂O - fireplace inserts. He will advise you of building law regulations, the suitability of your chimney, and will conduct the acceptance procedure for your fireplace insert. The chimney calculation is executed in accordance with DIN EN 13384 with the value triplet specified in this manual („1.3 Technical data“).

OUR FIREPLACE INSERT HAS BEEN TESTED IN ACCORDANCE WITH DIN EN 13229 AND SATISFIES THE REQUIREMENTS STIPULATED IN THE CONSTRUCTION PRODUCTS DIRECTIVE. (DECLARATION OF PERFORMANCE IS AVAILABLE AND CAN BE VIEWED AT WWW.SPARTHERM.COM)

Small children, elderly or infirm persons and pets: As is the case with all heating devices, it is expedient that you attach a protective fixture for these groups of persons, as the view pane and the cladding parts of the fireplace can become extremely hot!

→ **Danger of burn injuries!** ←

Never touch the fireplace when the fire is burning or has just been extinguished! The fireplace should never be operated for an extended period of time unattended.

IMPORTANT: The provided heat-resistant glove serves only as thermal protection when activating the operating handle and the cold hand. The glove is not fire-proof.

National and European standards, the respective state-specific and local directives and regulations, in particular the respective firing installation ordinance of the German Federal State, must be complied with for setup and operation of your fireplace insert and for the connection to the chimney.

For better utilisation of the high flue gas temperatures a water heat exchanger is integrated on the walls and in the flue gas manifold. A service water storage tank, buffer tank, etc. can be heated with the generated hot water. If these or similar system components are not available, then through other structural measures, safe and continuous heat dissipation must be ensured.

The fireplace must always be operated with the door **closed**. Modification of the closing device is prohibited! In the connecting line to the chimney, no other heat exchangers, coasting temperature surfaces, etc., that withdraw the heat from the flue gas can be integrated. The H₂O fireplace insert is used as a **supplemental heat generator** for water heating systems in accordance with DIN EN 12828, as the specified nominal heat output only occurs as long as the insert is fired with nominal heat output.

The fireplace can be operated manually **or with suitable combustion controllers** and appropriate settings. If necessary, consult with Spartherm Feuerungstechnik GmbH in this regard.

Never operate the H₂O fireplace inserts without water!!!

1.1 CLOSING FUNCTION OF THE COMBUSTION CHAMBER DOOR

Suitability of the fireplace for multiple connection (two or more fireplaces on the same chimney flue) depends on whether the door is self-closing:

Self-closing door function: Fireplace is suitable for multiple connection

No self-closing function: Multiple connection is not permitted, i.e. the fireplace must be connected to its own chimney flue.

Note: The old terms of "Design A1" or "Design A", which often occurred in the standard DIN 18895, which is no longer valid, often resulted in confusion of the two characteristics cited above, and these terms are no longer valid today.

Spartherm fireplace inserts must always be operated closed, i.e. with the exceptions of feeding or cleaning, the fireplace insert doors must be closed.

For operation on a chimney with a single fireplace connection (one fireplace per chimney system) the decision as to whether the fireplace inserts will have a self-closing combustion chamber door or a non self-closing combustion chamber door is left to the owner. Proper closing of the combustion chamber door while the fireplace is in operation is always the responsibility of the owner and must be ensured.

By flue fireplace inserts, the kind of door closure must **not** be changed!

1.1.1 CONVERSION – CLOSING FUNCTION OF THE COMBUSTION CHAMBER DOOR

Elevating Spartherm fireplace inserts in delivery status are provided with a non self-closing combustion chamber door, hinged fireplace inserts are provided with a self-closing combustion chamber door. The type of door closure, for elevating fireplace inserts with a non self-closing combustion chamber door can be converted to a self-closing combustion chamber door by removing the door counterweights. For hinged fireplace inserts with self-closing combustion chamber door, by offloading the door closing spring the door can be converted to a non self-closing combustion chamber door.

The procedure for converting the door closure type is provided in the associated assembly instructions for fireplace inserts.

By flue fireplace inserts, the kind of door closure must **not** be changed!

1.2 SCOPE OF DELIVERY

H₂O fireplace insert with the following features:

- Fireplace insert with integrated water heat exchanger, vertical sliding door or hinged door
- Integrated safety heat exchanger and ventilation possibility/possibilities
- Thermal discharge safety device (TAS) ¾" with immersion sleeve ½" and capillary tube length of 4.0 m, for example, from the company Watts
- Immersion sleeve for the thermostatic switch
- Cleaning brush with steel bristles
- Housing thermostat for circulation pump with capillary tube (length = 2.0 m) Afriso GTK 7/HD with 3.0 m temperature-resistant connection cable

Available options include the following components:

- Return flow boost (ESBE; type: LTC 200)
- Accessories for the heating installations, e.g. safety valves, expansion vessels, pressure gauges, etc.
- S-Thermatik NEO
- Hydro Control, differential temperature control

1.3 TECHNICAL DATA

			Mini Z1 H ₂ O	Mini Z1/Z1h H ₂ O XL	Mini Z1 H ₂ O RLU	Mini Z1 H ₂ O XL RLU	Varia 1V/1Vh H ₂ O		Varia 1V/1Vh H ₂ O XL		Varia 1V H ₂ O XL RLU
								Export		Export	
General data	Nominal heat output:	kW	7,0	10,0	7,0	10,0	8,0	11,0	9,0	12,0	10,0
	Room warming line:	kW	1,5	2,0	1,5	2,0	3,0	5,0	3,0	3,5	2,0
	Water output:	kW	5,5	8,0	5,5	8,0	5,0	6,0	6,0	8,5	8,0
	Thermal output range:	kW	4,9-9,1	7,0-13,0	4,9 - 9,1	7,0 - 13,0	5,6-10,4	7,7-14,3	6,3-11,7	8,4-15,6	7,0 - 13,0
	Wood feed quantity:	kg/h	2	2,8	2,0	2,8	2,3	3,2	2,5	3,4	4,3
	Wood feed quantity range	kg/h	1,4-2,6	2,0-3,7	1,4 - 2,6	2,0 - 3,7	1,6-3,0	2,2-4,1	1,8-3,3	2,4-4,5	3,0 - 5,6
	Weight (empty, without water)	kg	250	250	210	220	320	320	325	325	365,5
	Flue gas dome diameter	mm	180	180	180	180	180	180	200	200	200
	Efficiency:	%*	>85	>85	> 85	> 85	>80	>80	>85	>80	> 80
	CO content at 13% O ₂ :	mg/Nm ³	<1250	<1250	< 1250	< 1250	<1250	<1250	<1250	<1250	< 1250
	Dust content:	mg/Nm ³	<40	<40	< 40	< 40	<40	<40	<40	<40	< 40
Operation with closed combustion chamber	Minimum cross section "supply air"	cm ²	100	100	100	100	1000	1000	1000	1000	420
	Minimum cross section "recirculating air"	cm ²	80	80	80	80	800	800	800	800	350
	Flue gas temperature on the duct ¹ :	°C	235	245	235	245	240	250	220	235	221
	Supply pressure: ***	mbar	0,22	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12
	Mass flow of flue gas:	g/s	6,0	7,5	6,0	7,5	6,7	10,4	7,5	10,8	15,2
Thermal insulation (example, mineral wool in accordance with AGI-Q132 Q)	Combustion air requirement:	m ³ /h	20,3	25,6	20,8	25,6	24,0	37,0	26,3	38,0	55,2
	Setup floor	mm	52	52	50	50	0	0	0	0	0
	Attachment wall (side / rear)	mm	52	52	80 / 80	80 / 80	86	86	86	86	100 / 100
Water-side data	Ceiling	mm	-	-	-	-	-	-	-	-	-
	Perm. working overpressure	bar	3	3	3	3	3	3	3	3	3
	Max.perm. Flow temperature ¹	°C	105	105	105	105	105	105	105	105	105
	Max. operating temperature	°C	95	95	95	95	95	95	95	95	95
	Minimum flow temperature	°C	62	62	62	62	62	62	62	62	62
	Minimum return temperature	°C	55	55	50	50	55	55	55	55	50
	Flow connection	-	¾"	¾"	3/4"	3/4"	¾"	¾"	¾"	¾"	1 1/2"
	Return connection	-	¾"	¾"	3/4"	3/4"	¾"	¾"	¾"	¾"	1 1/2"
	Safety heat exchanger – inlet	-	½"	½"	1/2" ig	1/2" ig	½"	½"	½"	½"	1/2" ag
	Safety heat exchanger – discharge	-	½"	½"	1/2" ig	1/2" ig	½"	½"	½"	½"	1/2" ag
	Minimum throughput – heating water:	l/h	500	800	500	800	900	900	950	950	950
	Minimum throughput – thermal discharge safety device:	l/h	900	900	900	900	900	900	900	900	900
	Water content:	Liter	25	25	25	25	16	16	46	46	46
	At 20K spread:	mbar	7,0	7,0	7,0	7,0	9,0	9,0	9,0	9,0	9,0
Water-side resistance	At 10K spread:	mbar	18,0	18,0	18,0	18,0	20,0	20,0	20,0	20,0	20,0
	At 5K spread:	mbar	29,0	29,0	29,0	29,0	30,0	30,0	30,0	30,0	30,0

Varia 1V/1Vh H ₂ O XXL		Varia Ah H ₂ O		Varia A-FDh H ₂ O		Varia 2L/2R-55h H ₂ O		Varia 2Lh/2Rh H ₂ O		Varia FD/FDh H ₂ O			Varia 1VX/1VXh H ₂ O		
	Export		Export		Export		Export		Export		XL	XXL		XL	XXL
15,0	22,0	10,4	14,0	10,4	15,0	7,0	12,0	10,4	14,7	10,0	15,0	21,0	10,0	15,0	21,0
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11,0	15,0	7,2	10,8	6,2	10,9	4,7	7,7	5,9	8,4	6,4	9,4	13,2	6,4	9,4	13,2
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4,3	5,9	2,9	4,0	3,0	4,2	2,0	3,4	3,1	4,3	2,9	4,3	5,9	2,9	4,3	5,9
3,0-5,6	4,2-7,0	2,0-3,8	2,8-5,3	2,1-4,0	3,0-5,5	1,4-2,6	2,4-4,4	2,1-4,0	3,0-5,6	2,1-3,8	3,0-5,5	4,1-7,7	2,1-3,8	3,0-5,5	4,1-7,7
330	330	395	395	396	396	204	204	380	380	350-380	350-380	350-380	350-380	350-380	350-380
200	200	200	200	250	250	180	180	200	200	200	200	200	200	200	200
>85	>85	>85	>80	>80	>85	>85	>80	>80	>80	>80	>80	>80	>80	>80	>80
<1250	<1250	<1250	<1250	<1250	<1250	<1250	<1250	<1250	<1250	<1250	<1250	<1250	<1250	<1250	<1250
<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40
1000	1000	230	230	480	220	320	270	190	190	250	250	250	250	250	250
800	800	190	190	400	180	270	220	160	160	210	210	210	210	210	210
225	240	230	250	260	240	230	235	285	265	202	217	226	202	217	226
0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,11	0,13	0,12	0,11	0,13
13,1	14,8	8,0	13,3	10,1	13,0	7,4	11,0	10,8	12,2	14,3	14,7	17	14,3	14,7	17
48,2	55,0	26,5	41,6	37,9	41,6	25,3	40,5	32,1	53,4	47,6	50,6	60,8	47,6	50,6	60,8
0	0	0	0	0	0	-	-	0	0	0	0	0	0	0	0
86	86	75	75	86	86	62	62	51	52	120	120	120	120	120	120
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95
62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
55	55	>60	>60	>60	>60	60	60	60	60	60	60	60	60	60	60
¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"
¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"
½"	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"
½"	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"
950	950	800	800	800	800	800	800	900	900	800	800	800	800	800	800
900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900
46	46	32	32	32	32	29	29	41	41	32	32	32	32	32	32
9,0	9,0	15,0	15,0	15,0	15,0	13,0	13,0	12,0	12,0	14,0	14,0	14,0	14,0	14,0	14,0
20,0	20,0	32,0	32,0	32,0	32,0	22,0	22,0	21,0	21,0	31,0	31,0	31,0	31,0	31,0	31,0
30,0	30,0	47,0	47,0	47,0	47,0	39,0	39,0	34,0	34,0	46,0	46,0	46,0	46,0	46,0	46,0

¹ The thermal discharge safety device integrated in the heating system will open the cold water inlet at a boiler temperature of approx. 95°C!

* The specified values represent the mean value over a combustion. These values occur under test conditions with nominal heat output when approx. 2.9 kg of dry beech wood is burnt per hour.

'' Increased delivery pressures must be reduced to less than 30 Pa through suitable measures, such as a draught regulator or a damper.

1	Flue gas dome (Ø see technical data)
2	Separate combustion air duct Ø 150 mm *
3	Air adjustment lever
4	Door, hinged
5	Door, elevating

* Shown with separate SVS rear, standard scope of delivery

Instructions for thermal installation thicknesses and materials are provided in the installation instructions for fireplace inserts and the technical data, see chapter 1.3!

Rear ventilation dimensions between fireplace and thermal insulation: The rear ventilation dimension between the outer edge of the fireplace insulation and the thermal insulation of the heating chamber **must be at least 30 mm** and for the Varia Ah H₂O, Varia A-FDh H₂O and Varia 1V/1Vh H₂O / XL/XXL **it must be at least 60 mm**.

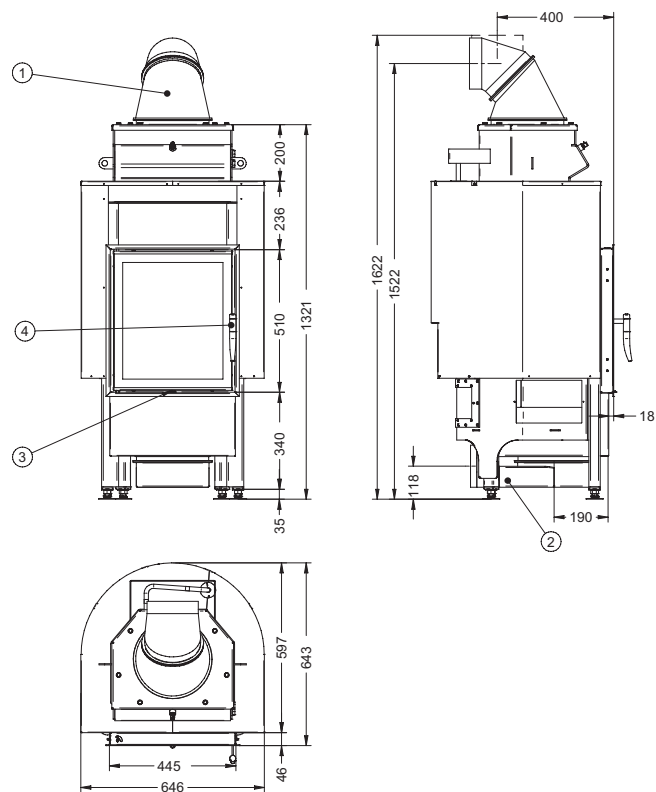
Mini Z1 H₂O / Mini Z1 H₂O XL / Mini Z1 H₂O RLU / Mini Z1 H₂O XL RLU

Abb. 1a

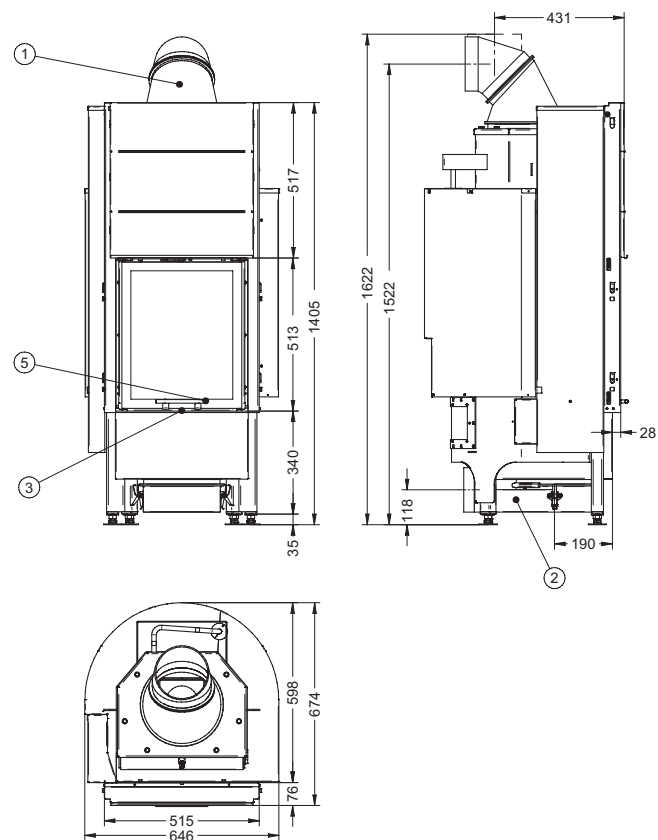
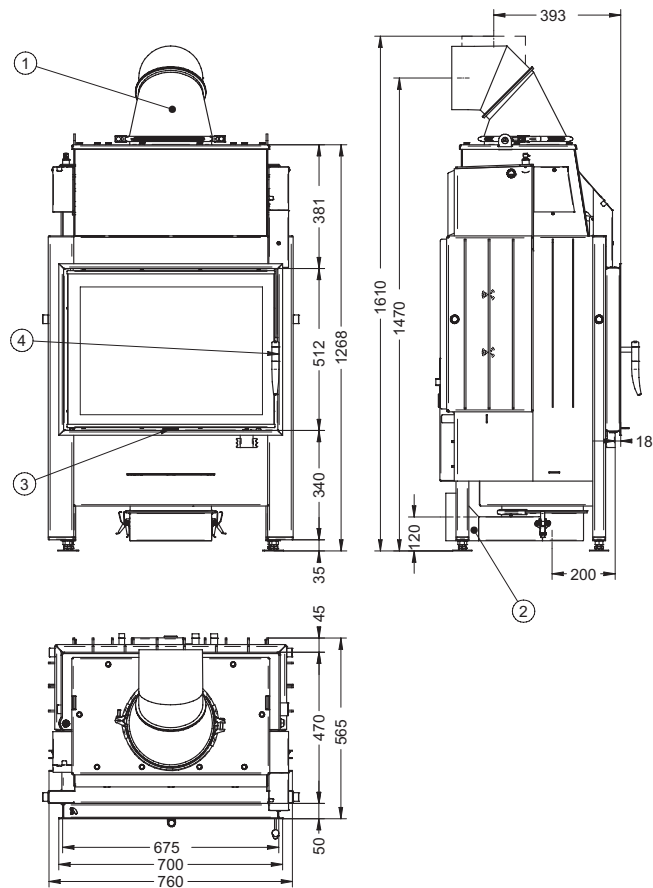
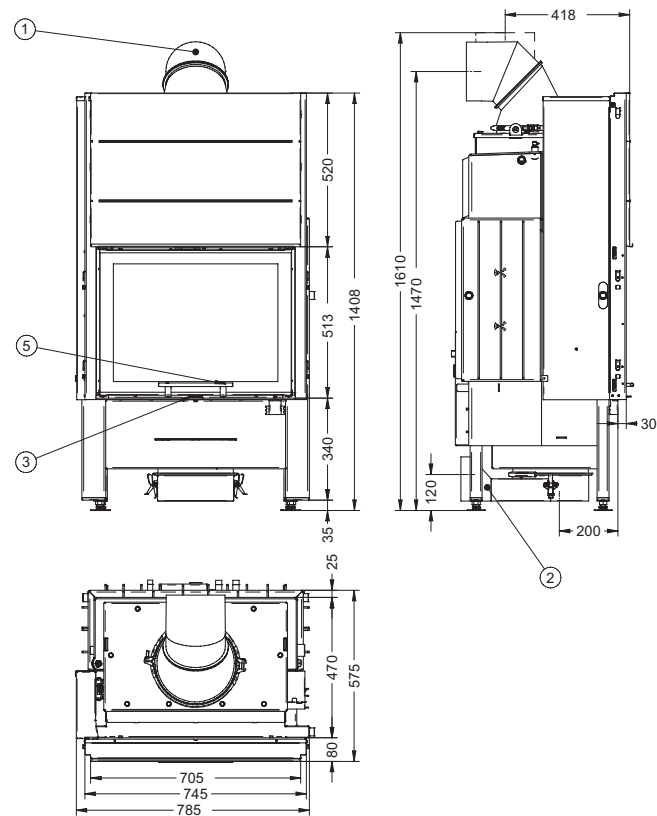
Mini Z1h H₂O / Mini Z1h H₂O XL

Abb. 1b



Varia 1V H₂O

Abb. 1c



Varia 1Vh H₂O

Abb. 1d

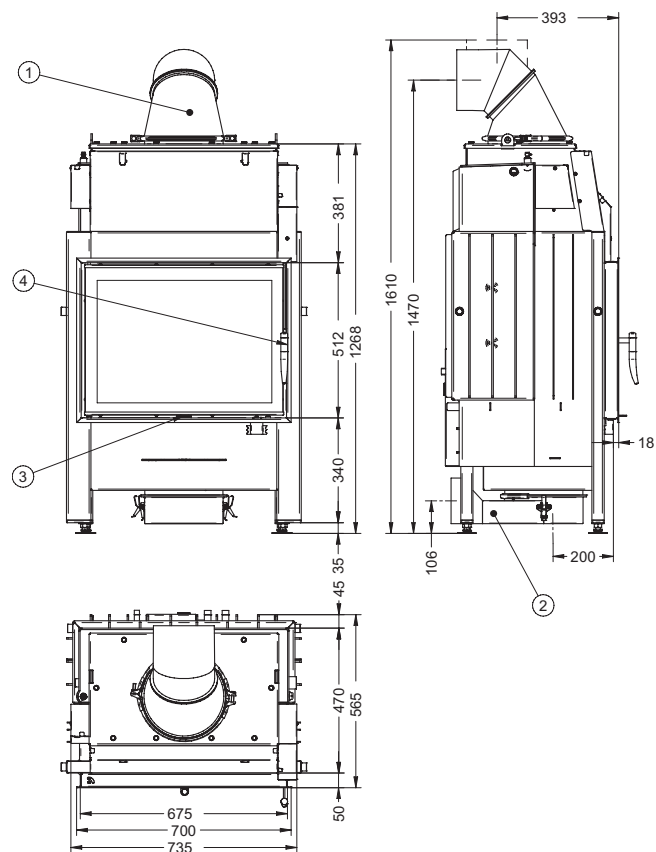
Varia 1V H₂O XL

Abb. 1e

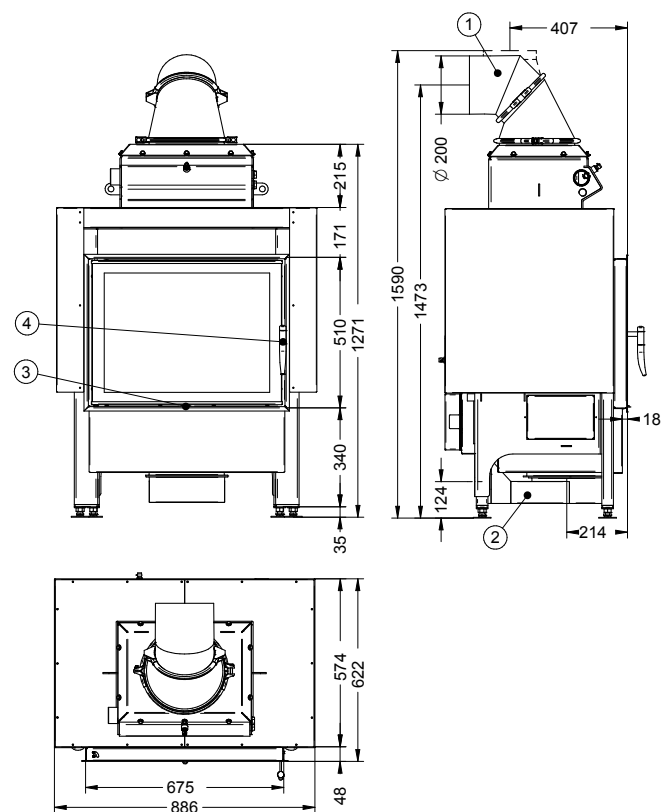
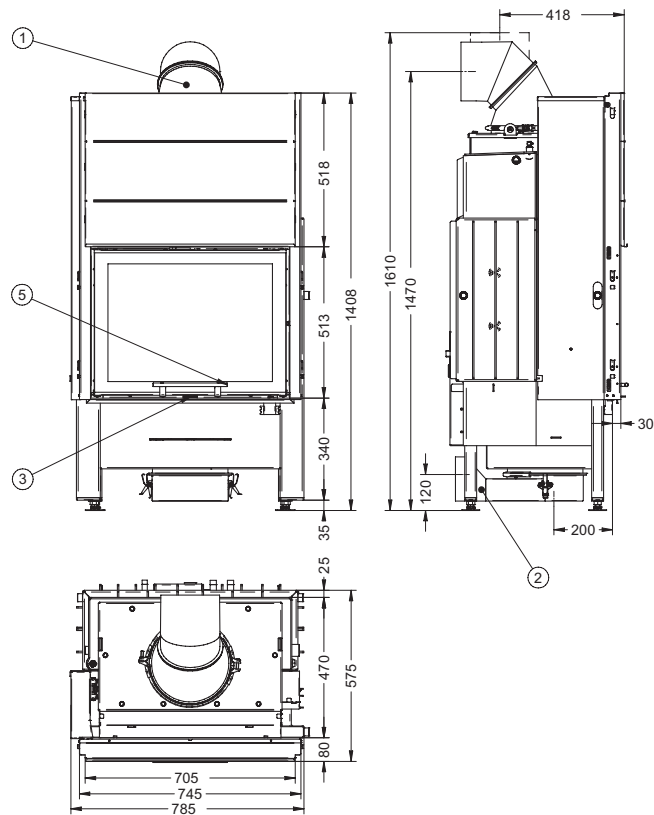
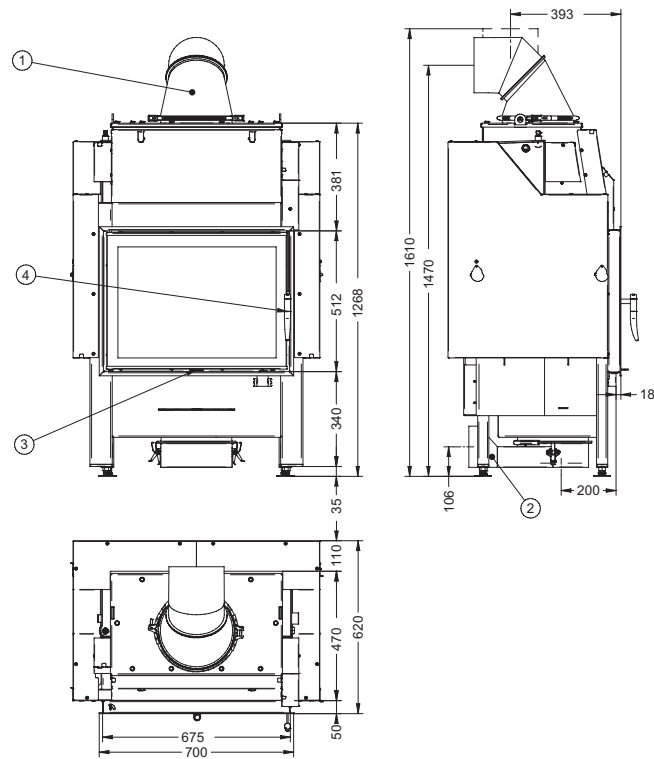
Varia 1V H₂O XL RLU

Abb. 1f



Varia 1Vh H₂O XL

Abb. 1g



Varia 1V H₂O XXL

Abb. 1h

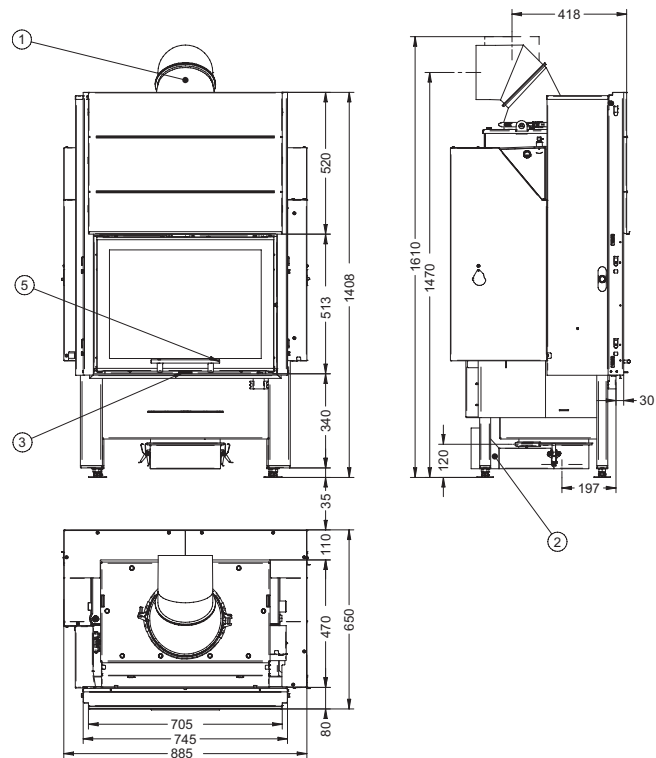
Varia 1Vh H₂O XXL

Abb. 1i

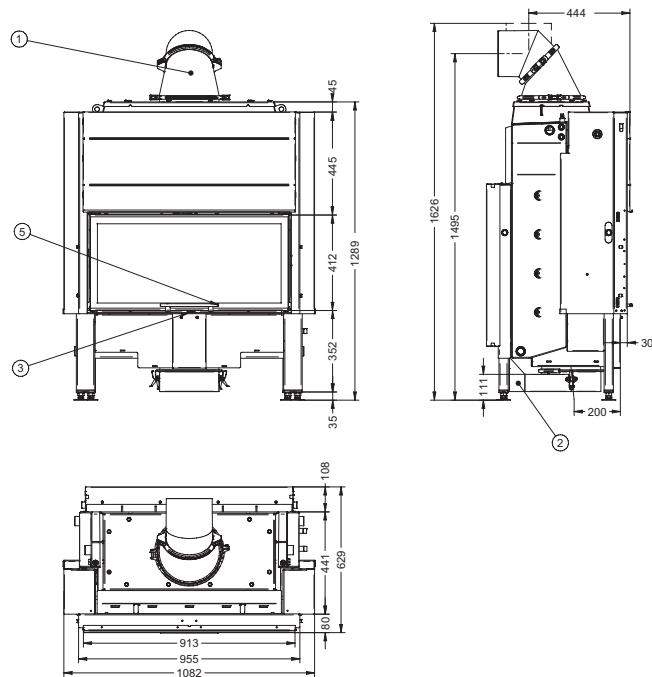
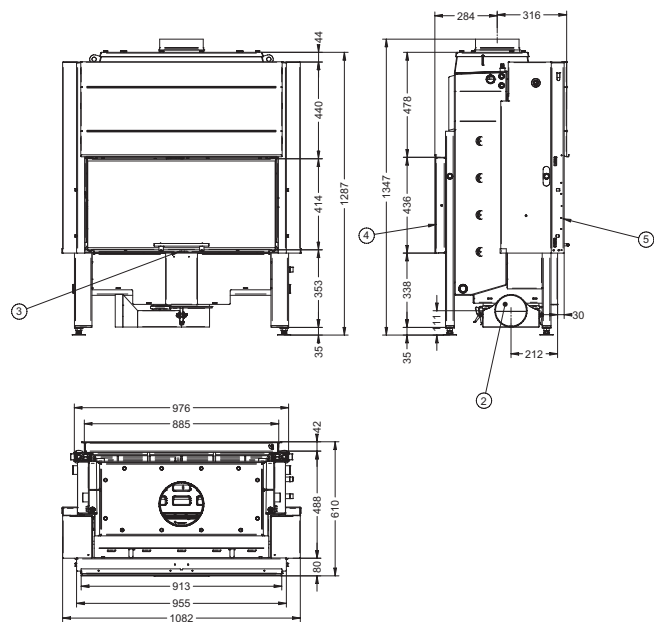
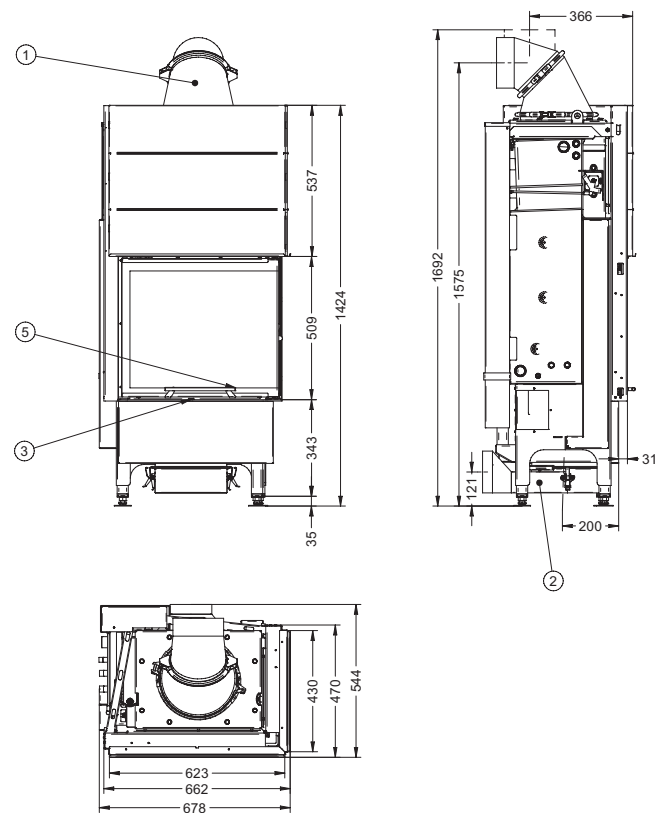
Varia Ah H₂O

Abb. 1j



Varia A-FD H₂O

Abb. 1k



Varia 2L/2R-55h H₂O

Abb. 1l

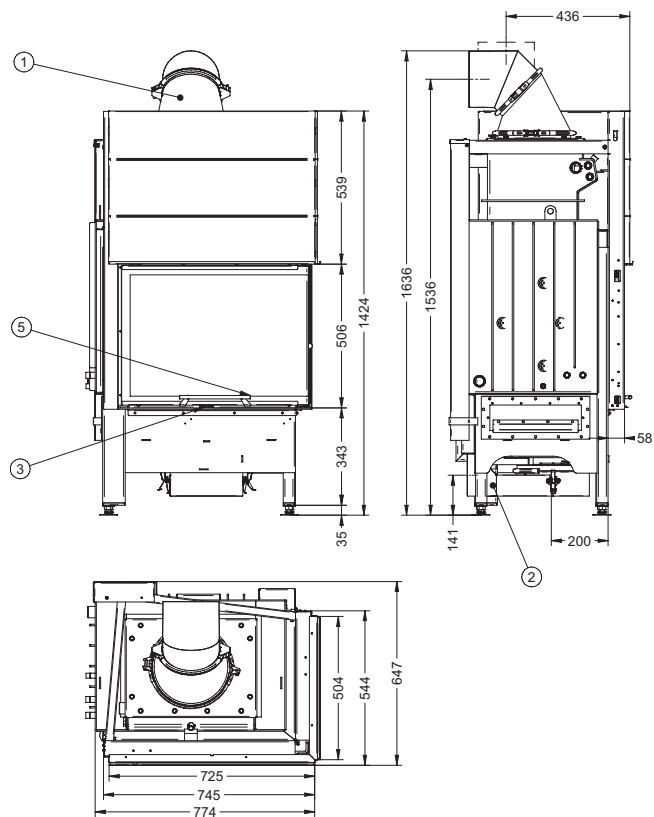
Varia 2Lh / 2Rh H₂O

Abb. 1m

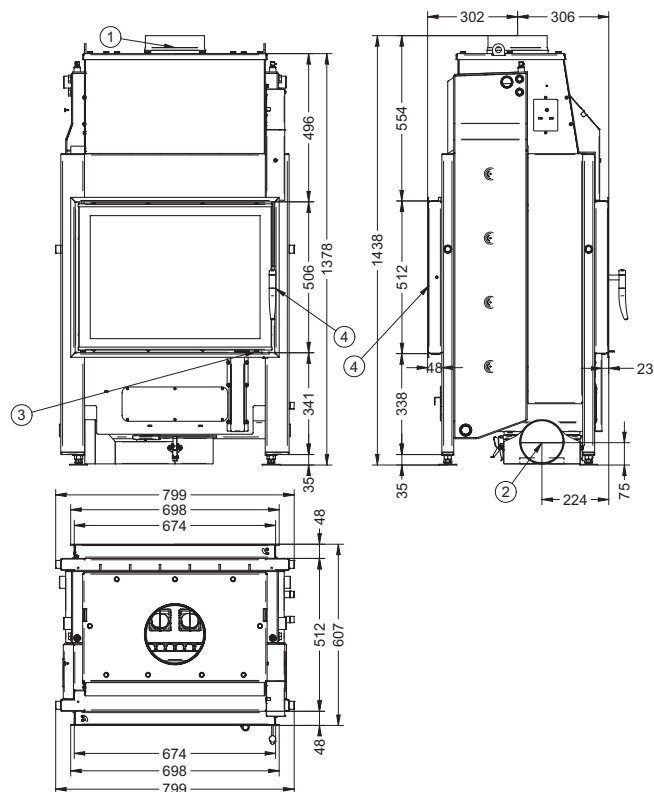
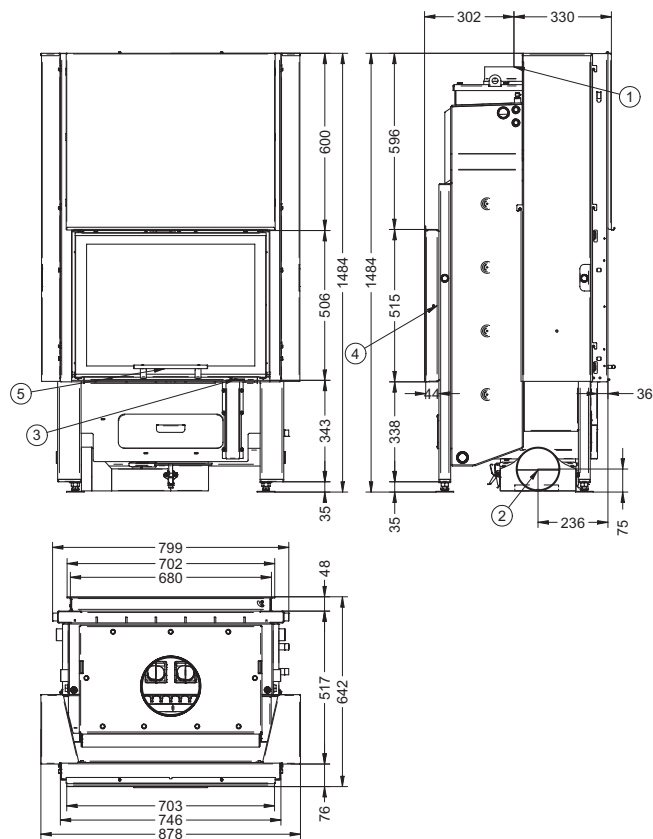
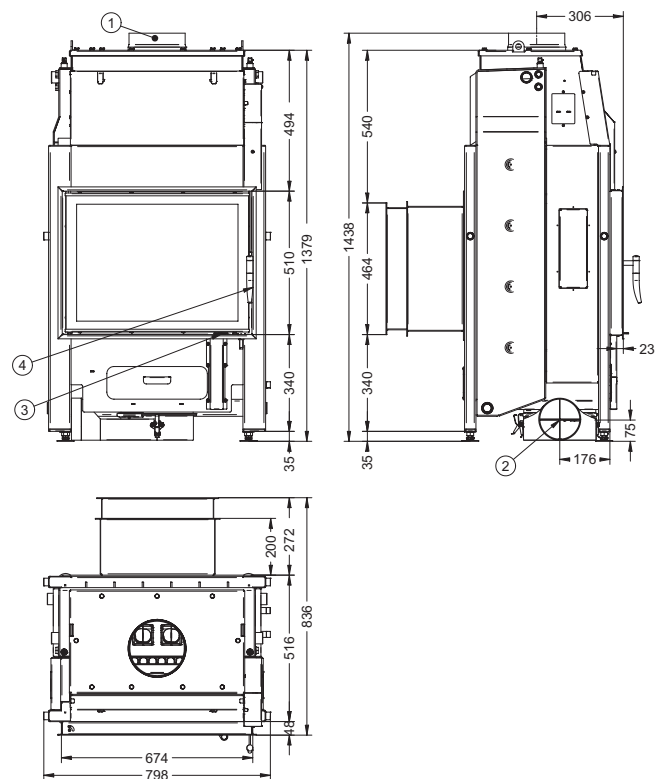
Varia FD H₂O

Abb. 1n



Varia FDh H₂O

Abb. 1o



Varia 1VX H₂O

Abb. 1p

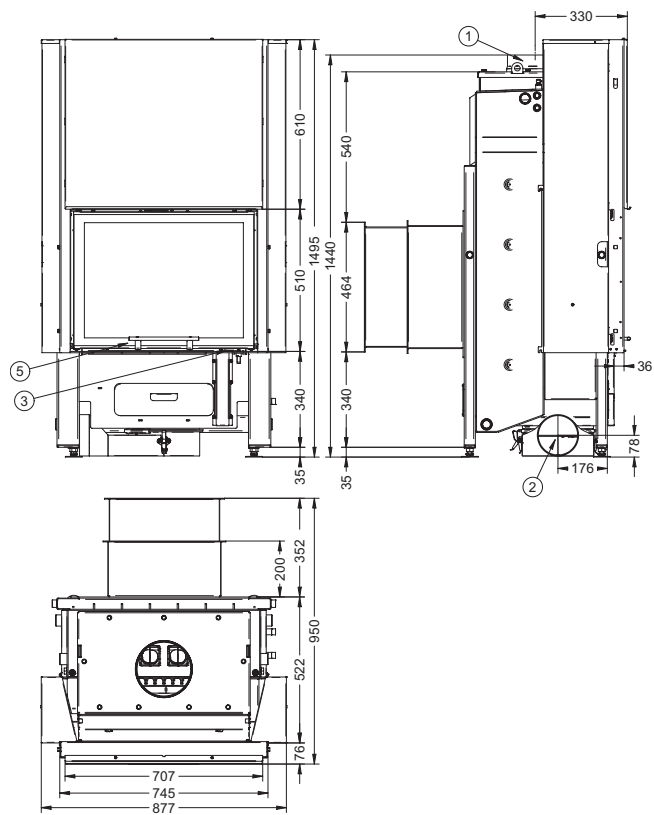
Varia 1VXh H₂O

Abb. 1q

2. INSTALLATION

The installation of the water-bearing components, the necessary safety devices, etc. must always be executed by a specialised company. The H₂O must be installed in such a manner that all components, including those that are behind the cladding, are accessible and can be checked at all times! After setup and connection of all installations, and prior to producing the heating chamber, the fireplace insert, as well as the associated heating installations, must be checked for leaks through a pressure test.

In this process, strictly ensure that the H₂O fireplace insert is aligned **horizontally** by adjusting the height of the fireplace insert feet, or that it is aligned with a slight incline toward the vent plug.

Set-up of the H₂O fireplace insert is always executed in accordance with the installation instructions for fireplace inserts!

The structure of H₂O RLU fuel cell is in addition to the data sheet for room sealed combustion cells.

2.1 BASIC INSTALLATION REQUIREMENTS

The H₂O fireplace insert must only be mounted in thermostatically protected systems in accordance with DIN 4751 or DIN EN 12828. All connections to the heating network must always be designed so that they can be detached (e.g. as threaded fitting). Only install temperature-resistant pipelines in the hot area of the fireplace insert. (The hot area is approximately above the beginning of the glass pane) the ambient temperature in the hot area can be far greater than 100°C. If there is a malfunction, damage to pipelines that are not temperature-resistant can occur. When using sealing materials, strictly ensure adequate temperature resistance! Due to the position of the flow connection, the temperature sensor and

bypass dampers in the front area of the fireplace insert, an opening in the front of the heating chamber must be provided for maintenance and repair tasks. All fittings, safety devices and electrical components must be installed in such a manner that they can be accessed, checked and replaced at any time.

Safety devices must not be installed in the hot area of the fireplace insert.

All water-bearing components must be protected against freezing!

When installing, the instructions in the installation and operating manuals of the installed supplemental components must always be complied with!

For installation, connection and operation of the H₂O fireplace insert, all necessary national and European standards, as well as local regulations (DIN, DIN EN, state construction ordinances, firing ordinances, etc.) must be complied with and applied!

HeizAnlV:	Heizungsanlagenverordnung (Heating Systems Ordinance)
FeuVo:	Feuerungsverordnung (Firing Installation Ordinance) of the respective German Federal State
1. BImSchV	Erste Verordnung zur Durchführung des Bundes-Immissionsschutzgesetz (First Ordinance on the Implementation of the Federal Emissions Control Act)
EnEV	Energieeinsparverordnung (Energy Savings Ordinance)
TR-OL	Fachregeln des Kachelofen- und Luftheizungsbau handwerks (ZVSHK) (Applicable regulations of the German Association of Tiled Stove and Hot-Air Heating System Builders)
DIN 1298 /	

EN 1856:	Connecting flue pipes for heat generating systems
DIN EN 13229	Inset appliances including open fires fired by solid fuels
DIN EN 50165	Electrical equipment of non-electric appliances for household and similar purposes - Safety requirements
DIN EN 13384	Chimneys - Thermal and fluid dynamic calculation methods
DIN 18160-1/2	Chimneys / house chimneys
DIN EN 12828 / DIN 4751	Heating systems in buildings, planning of hot water systems LBO in accordance with State Building Regulations VDI 2035 Water treatment for heating systems

This listing of directives makes no claim to be complete!

Fireplaces may only be installed in rooms and places where the location, construction situation and type of utilisation do not lead to hazards. The floor area of the installation must be of a design and size such that the fireplace can be operated properly and as intended.

2.2 ELECTRICAL CONNECTION

The entire electrical installation of the individual components of the heating system must only be executed by an authorised specialised company. In this regard, all tasks must be executed in accordance with the VDE regulations (e.g. VDE 0105, VDE 0116, VDE 0100, etc.), and in accordance with the technical connection conditions specified by the local electricity supplier.

2.3 CONNECTIONS OF THE H₂O FIREPLACE INSERTS

The connections of the safety heat exchanger, of the return flow and of the rear ventilation possibility are on the rear or side and can always be reached through an inspection opening over the combustion chamber. The connections

of the flow, the front ventilation possibility, as well as the immersion sleeves for the temperature sensors are all located on the side on the flue gas manifold. For accessibility, an opening in the fireplace cladding must be provided here! For transport purposes the connections are provided with transport safeguards. These must be removed for installation. The connections are clearly labelled and must not be used other than for the specified purpose! Likewise, the integrated safety device (safety heat exchanger) must not be used to heat water. For the pipe connections we recommend the use of straight or angled threaded radiator fittings.

Mini Z1/Z1h H₂O/XL and Mini Z1 H₂O/XL RLU

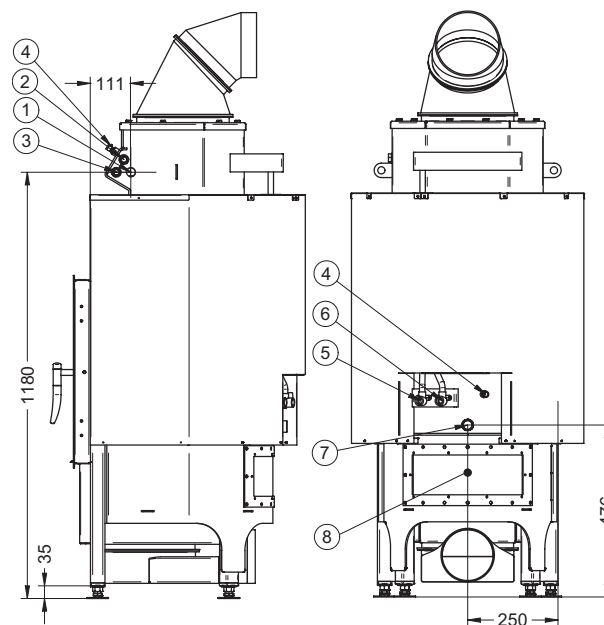


Fig. 2a

Varia 1V/1Vh H₂O/XL

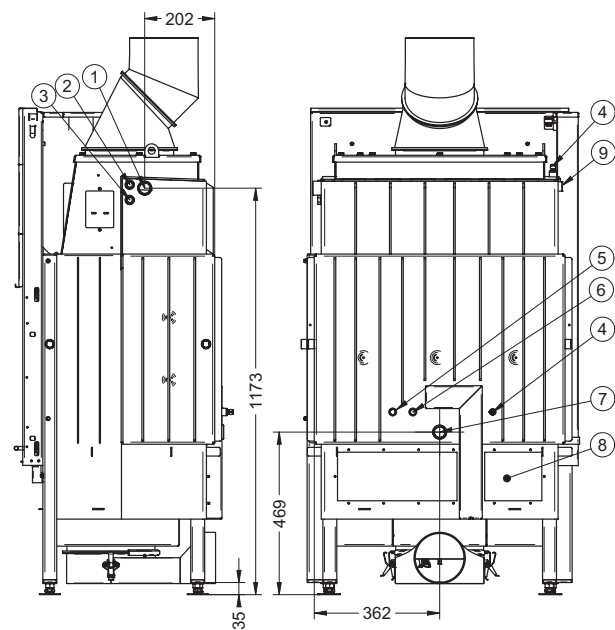


Abb. 2b

Varia 1V H₂O XL RLU

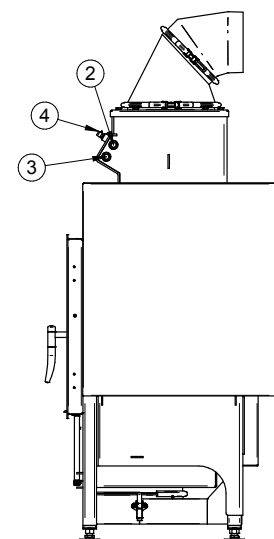
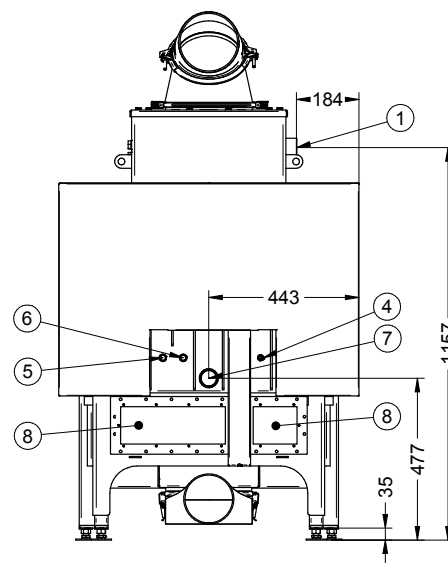


Abb. 2c

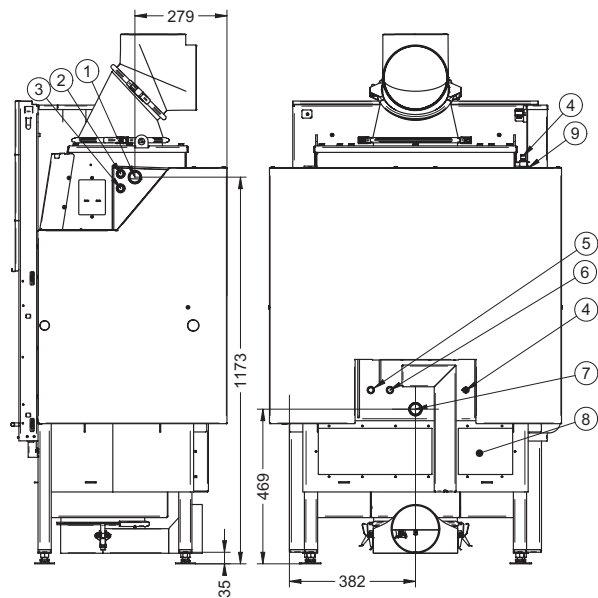
Varia 1V/1Vh H₂O/XXL

Abb. 2d

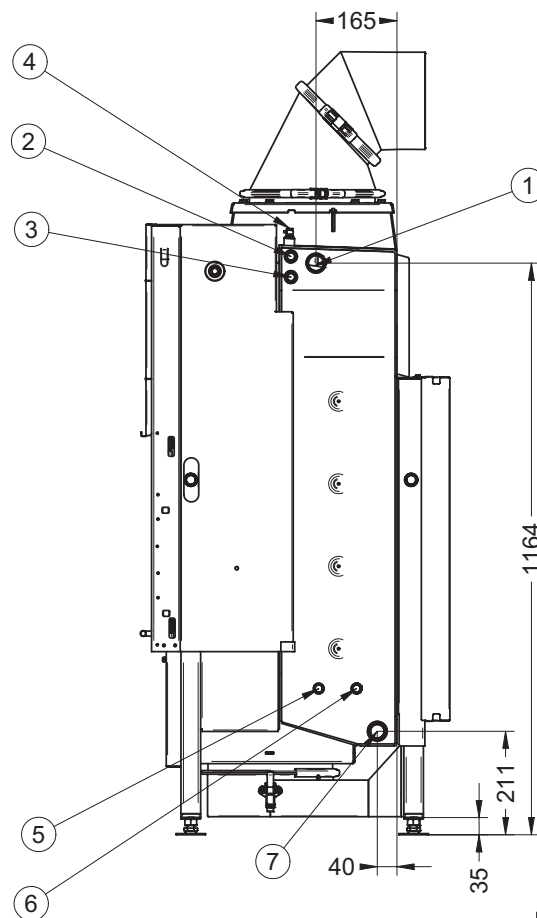
Varia Ah H₂O / A-FDh H₂O

Abb. 2e

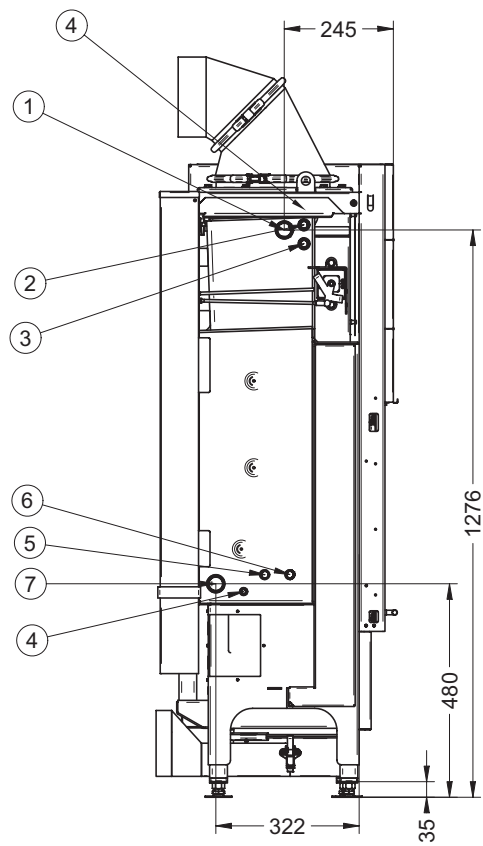
Varia 2L/2R-55h H₂O

Abb. 2f

Varia 2Lh/2Rh H₂O

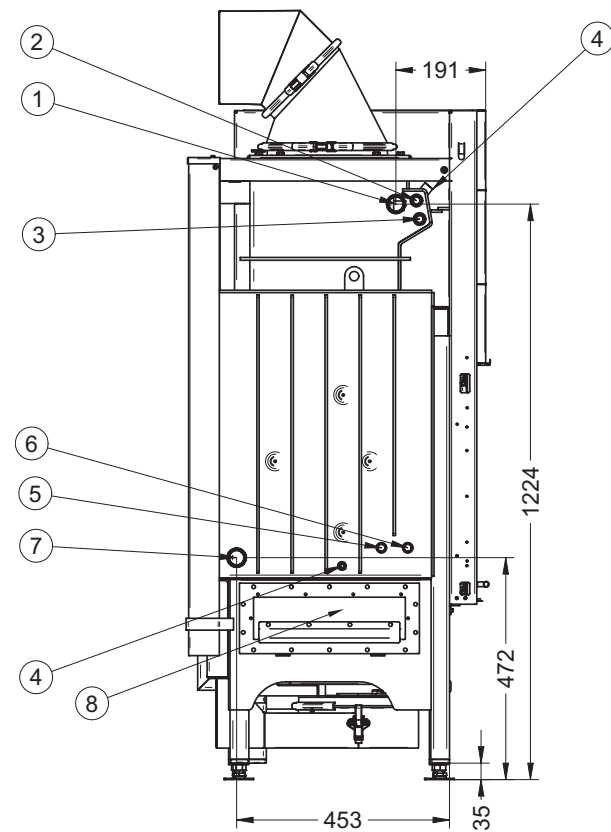
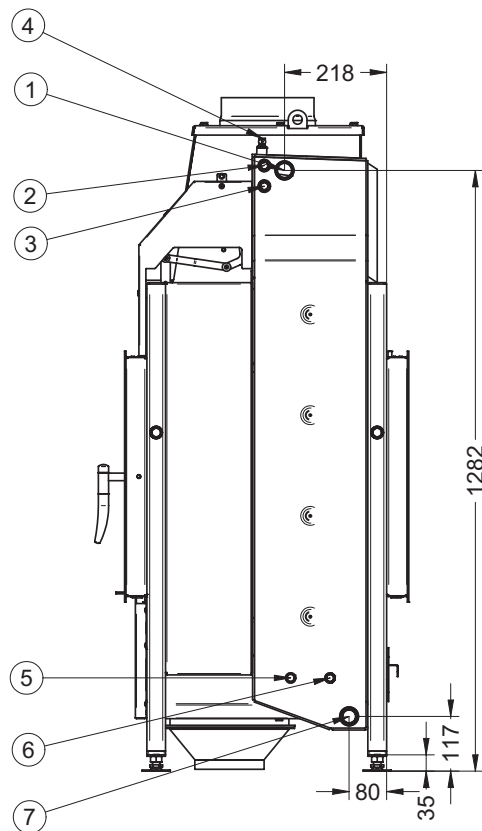


Abb. 2g

Varia FD/FDh H₂O
Varia 1VX/1VXh H₂O



For access to the water-side connections an inspection opening can be opened in the rear wall or the side wall. To do this, the combustion chamber lining (side walls, rear wall, ash grate, ash pan and combustion chamber floor) must be dismantled.

After the inspection the closure plate must be remounted and the combustion chamber lining must be installed. Accessibility to the flow connection and to the front-side ventilation must be enabled via an opening in the heating chamber wall.

1	Flow connection
2	Temperature sensor for thermal discharge safety device
3	Temperature sensor – thermostatic switch
4	Ventilation
5	"Discharge" – safety heat exchanger
6	"Inlet" – safety heat exchanger
7	Return connection
8	Inspection opening
9	Connection for optional safety valve

Note for all fireplace inserts:
Operation without combustion chamber lining is not permitted!

Abb. 2h

2.4 MINIMUM CROSS SECTIONS - CONVECTION AIR

The minimum cross sections for convection air (supply air and recirculating air) in the cladding or in the heating chamber must be designed as described in the technical data (chapter „1.3 Technical data“).

The Regulations of the German Tiled Stove and Air Heating Constructors Association (TR-OL 2006) must always be taken into account.

The specification of opening sizes for convection air applies for air velocities of 0.75 m/s in fireplaces (hot-air systems or radiant heating). If a combination of fireplace and closed system (hypocausts) is created, there are smaller openings for supply air and circulating air, since the energy output via the heating chamber surface should be considered.

2.5 VENTILATION AND DRAINING

A 1/2" draining possibility must be provided at the low point of the fireplace insert and of the pipe system. To vent the water heat exchanger the vent possibilities cited in Fig. 2a-2f must be available. In the direct vicinity of the vent valve a sufficiently large opening must be provided in the lining where the upper vent is used! On the other hand, the lower vent (in the area of the connections on the rear) can be reached and used through the inspection opening in the combustion chamber. After commissioning, the insert must be vented several times because the heating water outgases due to the high temperatures. It must be ensured at all times that the system is adequately filled with water and vented. This must be particularly checked after longer periods of system downtime.

The stipulations of TR-OL regarding the free cross-section of the vent openings, as well as the maximum supply air temperatures of 75 °C must be strictly complied with! Non-lockable recirculating air openings and supply air openings are recommended to exclude the possibility of accumulated heat within the combustion chamber!

2.6 SAFETY VALVE

In the direct vicinity of the H₂O fireplace insert, a type-tested safety valve (e.g. make Syr, type 1915) with an activation overpressure of max. ^{3.0 bar} must be mounted in the **flow line**. When installing, the manufacturer's specifications (e.g. ambient temperature) of the safety valve must be taken into account. A shut-off possibility must not be integrated in the system between the safety valve and the H₂O fireplace insert. This could render the safety device inoperable. Moreover, all necessary safety devices must be integrated in the entire system in such a manner that safe operation is ensured. A separate safety valve must also be installed, if such a safety valve is installed at a different point in the entire system (comply with TRD 721!).

2.7 RETURN FLOW TEMPERATURE BOOST

The H₂O fireplace insert must only be operated with a suitable return flow boost. In operation the return flow temperature must be at least 55°C/60°C (see „1.3 Technical data“). So that this temperature is ensured, a circulation pump must be installed in such a manner that it only starts up if a water temperature of 60-65°C has been reached in the heat exchanger. This must be executed with the **pump thermostat** (included in the scope of delivery, e.g. JUMO, heatTHERM, Afriso) (see „2.9 Thermal pump controller“). To avoid temperatures below the local dewpoint and thus deposits on the water heat exchanger, a regulated return flow temperature boost must always be installed. The longer the pipelines between the return flow temperature boost and the fireplace insert, the longer the time the temperature can be below the dewpoint in the fireplace insert, because this heating water must only be warmed at heating up. Consequently, it is recommended to install the return flow temperature boost unit directly, however where it is easily accessible, in the vicinity of the fireplace insert.

Please note: If there is no return flow temperature boost unit, or if the return flow temperature boost is not functioning effectively, we can assume

neither liability nor warranty for operational malfunctions or corrosion damage (sooting, deposits, etc.) on the water heat exchanger or on the chimney, etc.

2.8 THERMAL DISCHARGE SAFETY DEVICE

Because heating of the H₂O fireplace insert is not automatic, nor can it be quickly shut-off, the hot water insert must be equipped with a thermal discharge safety device in accordance with DIN 4751 - Part 2 and DIN EN 12828 to avoid dangerous situations in the case of malfunction, such as a power outage. For this, a safety device (safety heat exchanger) is integrated in the H₂O fireplace insert to prevent overheating. This safety device must not be used as a water heater.

The provided thermal discharge safety device (e.g. Watts STS) has been tested and approved for a minimum water throughput of 900 kg/h. The sensor of the capillary tube must be pushed into the appropriately marked connection opening of the H₂O fireplace insert (into the sealed-in immersion sleeve) and permanently fixed in place.

The following instructions must always be complied with for the installation, so that the safety device can function:

- For the installation, the instructions in the installation and operating manual for the thermal discharge safety device provided by the manufacturer must always be complied with!
- The fitting of the thermal discharge safety device must only be installed in the flow line. This ensures that when operated as intended, pressurized standing water is not present in the safety heat exchanger.
- The fitting of the thermal discharge safety device must not be placed in the hot area of the heating chamber (convection chamber) of the fireplace system (max. ambient temperature 80°C). Select the position in accordance with the length of the capillary tube!
- At the cold water inlet, a flow pressure of at least 2.0 bar must be available. This pressure must be constantly ensured. The possibility of water

supply pipe fluctuations must be excluded. For example, this means that a mains voltage-dependent domestic water supply is not approved!

- Minimum water throughput of approx. 900 kg/h must be ensured. It must not be possible to shut off this supply line!
- The heating insert must be aligned so that the front vent is at the highest point.

All safety-relevant components must be integrated in the system in such a manner that function and leak-tightness can be checked at any time. The discharge of the thermal discharge safety device must be designed in such a manner that a check (e.g. via a drain with siphon) can take place at any time.

2.9 THERMAL PUMP CONTROLLER

The fireplace insert must always be operated with a return flow temperature boost. A thermostatic switch from Afriso is included in the scope of delivery, which must be electrically integrated in the power supply of the return flow boost unit (circulation pump). The associated wrapped capillary tube must be unwrapped and pushed into the labelled immersion sleeve on the front, top right/left, and secured with the provided clamp. **Attention – the capillary tube must not be extended or kinked!!** This ensures that the circulation pump only starts up at a sufficient water temperature and switches off if the specified temperature is not reached. Connection is executed in accordance with **Fig 3a - b**. Control of the circulation pump can occur via a suitable boiler controller or similar devices. For the installation, the instructions in the installation and operating manual of the thermostat must be complied with! The sensor of the thermostat must be pushed into the appropriately marked connection opening of the H₂O fireplace insert (sealed-in immersion sleeve) and permanently fixed in place.

The maximum load capacity of the thermal pump controller is approximately **500 W** at alternating current AC 230.

The factory setting of the minimum thermostat can be set on the rotary adjuster and it has been preset to a temperature of approximately 62°C. Optionally, if conditions so require, the setting range can be adjusted by the installation company. If the rotary adjuster is taken off, the adjustment range can be changed by turning the red actuator.

Please note: The minimum setting of approximately 57°C should not be underranged.

The connection is executed in accordance with Fig. 3a and 3b .

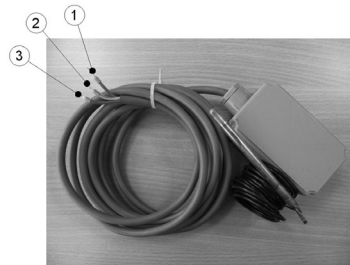


Fig. 3a

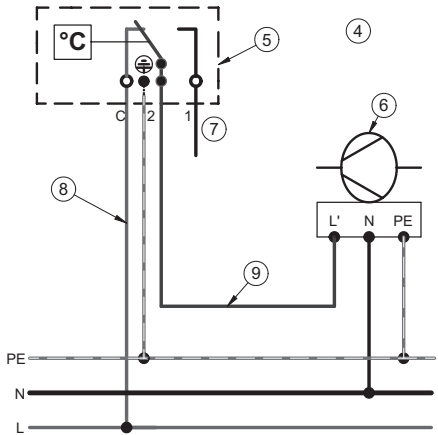


Fig. 3b

1	The blue wire is the switched phase (L') and is wired as phase on the circulation pump or return flow boost unit.
2	The green-yellow wire is wired to the protective earth conductor (PE) of the mains supply line
3	The brown wire must be wired to the phase (L) of the mains supply line.
4	Electrical connection of the thermostat pump controller
5	Thermostat as pump controller (e.g. AFRISO) with approx. 3.0 m connection line 2x 0.75 mm²
6	Return flow temperature boost (circulation pump)
7	Terminal 1 not necessary!
8	Phase L (brown line)
9	Switched phase (L') blue line

2.10 INTEGRATION IN A HEATING SYSTEM

The H₂O fireplace insert must only be installed in an overall system after detailed planning of the overall heating system in accordance with the relevant rules of technology and the safety standards. Proper configuration of the pumps, fittings, pipeline, buffer tank and the safety components, such as safety valve and expansion tank, is the responsibility of the planning firm and/or of the executing installation company. Bear in mind that during the combustion phase, extremely high water output of approx. 20 kW can briefly occur. The heating installations must be configured accordingly, among other things.

The following sample calculation can be helpful for dimensioning the buffer tank:

For the Mini Z1 H₂O:

The following assumptions have been made in this regard:

- Size of the buffer tank: 300 l (approx. 300 kg water)
- Water temperature in the buffer tank at the beginning: 30°C
- Water temperature in the buffer tank at the end: 60°C
- Temperature differential 30°C (corresponds to 30 K)
- No heat withdrawal from the buffer tank during heat-up through the Mini Z1H₂O and no heat losses of the system

$$Q = c_p \times m \times \Delta t$$

$$Q = 4,187 \frac{\text{kJ}}{\text{kg} \times \text{K}} \times 300 \text{ kg} \times 30 \text{ K}$$

$$Q = 37683 \text{ kJ}$$

This means: To heat up 300 litres of water in a buffer tank, from an assumed 30°C to 60°C, a theoretical heat quantity of 37,683 kJ (= 37,683 kWh) is required (losses or heat withdrawals in the system have not been taken into account). This heat quantity corresponds to approx. 10.5 kWh. However, with an effective setup of the heating system, e.g. of a stratified buffer tank, the heat utilisation can begin shortly after start of circulation in Mini Z1 H₂O. In this case, only the excess energy will be stored in the buffer tank, not the energy required for heating.

At an average assumed power of approx. 9 kW of the H₂O fireplace insert, heat-up of the entire buffer tank takes **just under 2 hours**.

On extremely cold winter days, it is possible that the fireplace system may also be in operation for approximately 12 hours. In this case, the thermal energy thus produced is theoretically 66 kWh. This thermal energy would then be sufficient to heat just under 1,900 litres of water (from 30°C to 60°C). As a rule, in such a situation heat is also continuously withdrawn so that overloading of the buffer tank (> 90°C) should not occur.

The assumptions, values and results for the other fireplace inserts are specified in the table below.

Technical data, heating system		Mini Z1 H ₂ O/ RLU	Mini Z1 H ₂ O XL/ RLU	Varia 1V/1Vh H ₂ O		Varia 1V/1Vh H ₂ O XL		Varia 1V H ₂ O XL RLU	Varia 1V/1Vh H ₂ O XXL		Varia Ah H ₂ O	
					Export		Export			Export		Export
Nominal heat output:	kW	7,0	10,0	8,0	11,0	9,0	12,0	14,4	15,0	22,0	10,4	14,0
Water output:	kW	5,5	8,0	5,0	6,0	6,0	8,5	10,0	11,0	15,0	7,2	10,8
Buffer tank storage volume:	Litres	300	500	300	300	300	500	750	750	1000	500	750
Necessary heat quantity for heating the buffer tank	kW/h	10,5	17,4	10,5	10,5	10,5	17,5	26,2	26,0	35,0	17,4	26,2
Time for heating the buffer tank (at 30K)	h	~2,0	~2,0	~2,5	~2,0	~2,0	~2,0	~3,0	~2,0	~2,0	~2,5	~2,5
Heat energy in 12 h	kW	66	96	49	67	75	100	120	136	186	85	130
Heat quantity sufficient for	Litres	1900	2750	1410	1930	2130	2990	3400	3890	5330	2400	3700

Technical data, heating system		Varia A-FDh H ₂ O		Varia 2L/2R 55h H ₂ O		Varia 2L/2Lh/2R/2Rh H ₂ O		Varia FD / FDh H ₂ O			Varia 1VX / 1VXh-H ₂ O		
			Export		Export		Export		XL	XXL		XL	XXL
Nominal heat output:	kW	10.4	15.0	7.0	12.0	10.4	14.7	10.0	15.0	21.0	10.0	15.0	21.0
Water output:	kW	6.2	10.9	4.7	7.7	5.9	8.4	6.4	9.4	13.2	6.4	9.4	13.2
Buffer tank storage volume:	Litres	500	750	300	500	500	500	500	500	750	500	500	750
Necessary heat quantity for heating the buffer tank	kW/h	17.4	26.2	10.7	17.4	17.4	17.4	17.4	17.4	26.2	17.4	17.4	26.2
Time for heating the buffer tank (at 30K)	h	~3.0	~2.5	~2.0	~2.5	~3.0	~2.0	~3.0	~2.0	~2.0	~3.0	~2.0	~2.0
Heat energy in 12 h	kW	75	130	55	90	70	100	76	113	158	76	113	158
Heat quantity sufficient for	Litres	2130	3750	1620	2650	2030	2890	2201	3235	4540	2201	3235	4540

Possible variant for the integration of the Mini Z1 H₂O/RLU, Mini Z1 H₂O XL/RLU and Mini Z1h H₂O XL in a heating system (**Fig. 4a**).

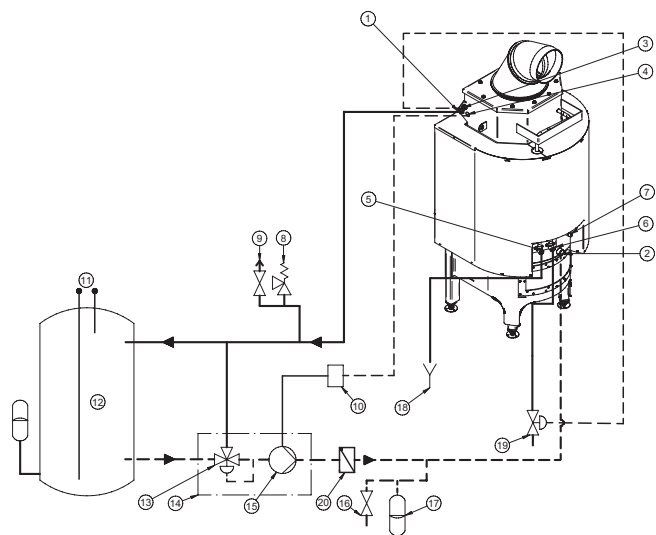


Abb. 4a

Possible variant for the integration of the Varia 1V/1Vh H₂O/XL/XXL in a heating system (**Fig. 4b**).

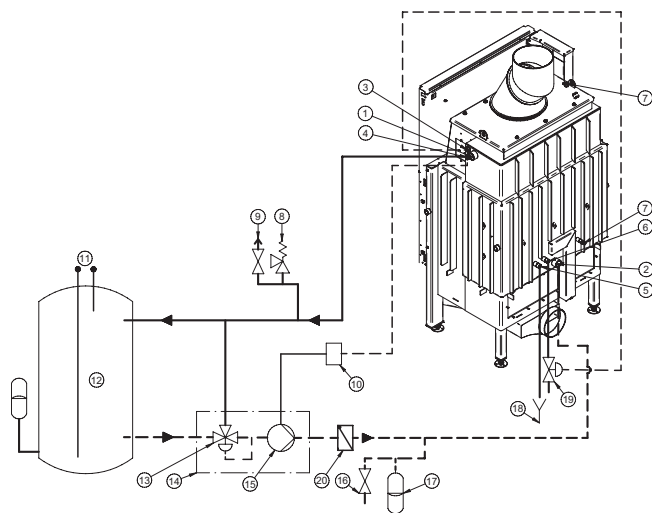


Abb. 4b

Possible variant for the integration of the Varia 1V H₂O XL RLU in a heating system (**Fig. 4c**).

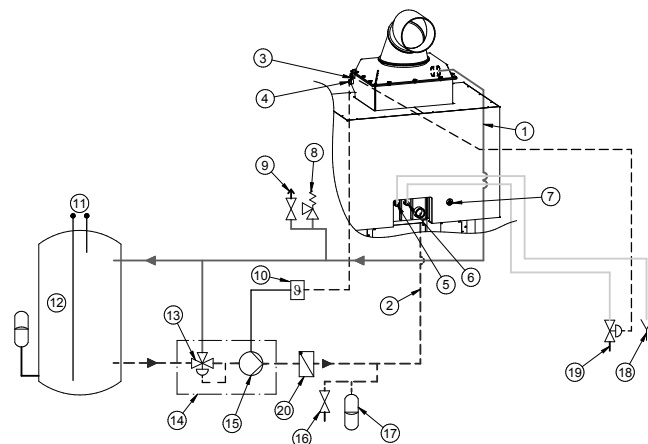


Abb. 4c

Possible variant for the integration of the Varia Ah/A-FDh H₂O in a heating system (**Fig. 4d**).

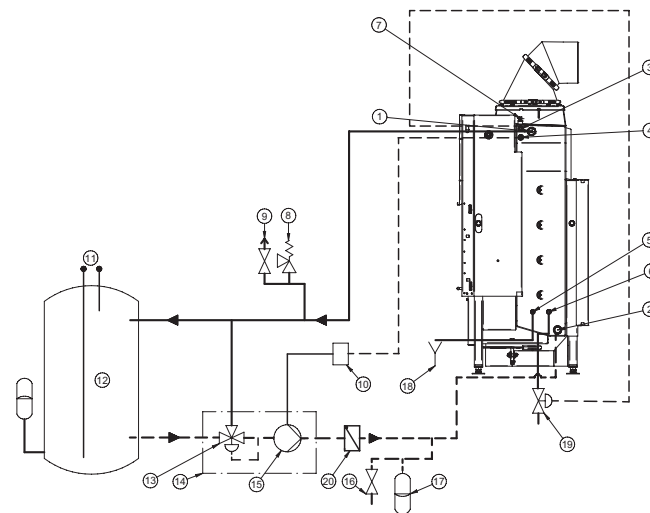


Abb. 4d

Possible variant for the integration of the Varia 2L/2R-55h H₂O in a heating system (**Fig. 4e**).

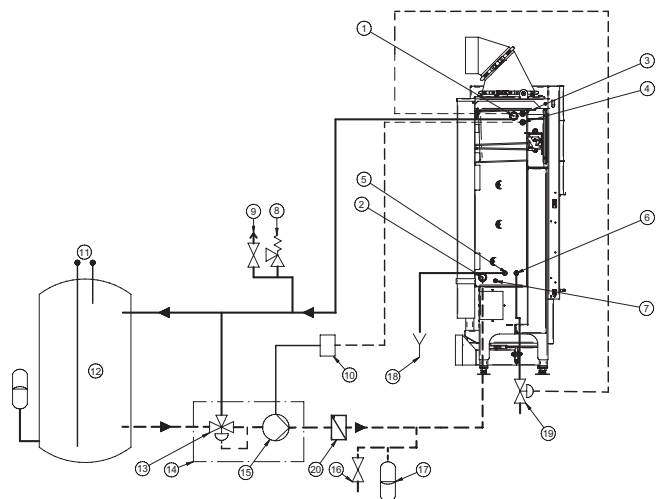


Abb. 4e

Possible variant for the integration of the Varia 2Lh/2Rh H₂O in a heating system (**Fig. 4f**).

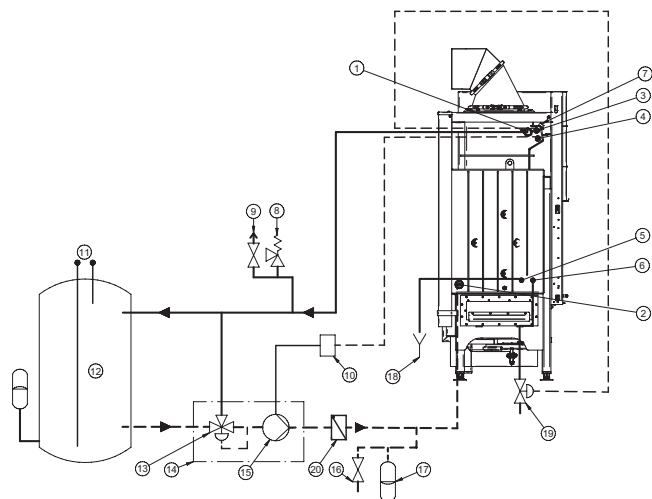


Abb. 4f

Possible variant for the integration of the Varia FD/FDh H₂O and Varia 1VX/1VXh H₂O in a heating system (**Fig. 4g**).

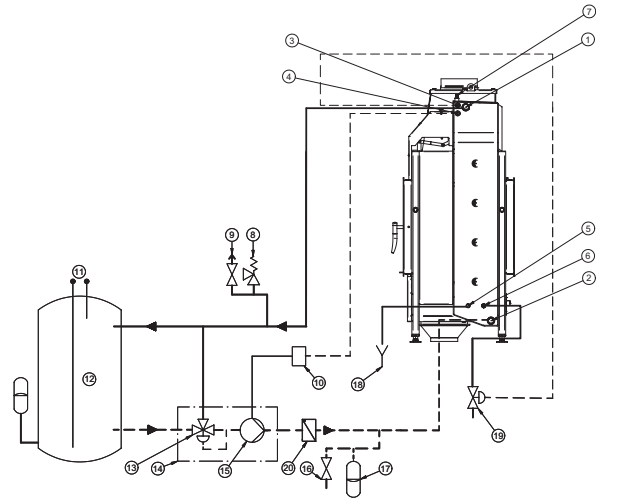


Abb. 4g

Please note: Fig. 4a-f shows possibilities of how an H₂O fireplace insert can be integrated in existing heating systems. However these examples do not replace detailed planning of the installation by a specialised company.

1	Flow
2	Return
3	Temperature sensor for thermal discharge safety device/// (TAS)
4	Temperature sensor for thermostatic switch
5	"Discharge" – safety heat exchanger
6	"Inlet" – safety heat exchanger
7	Ventilation
8	Safety valve 3 bar
9	Ventilation
10	Thermostatic switch - pump (e.g. Afriso)
11	Connection - heating system
12	Buffer tank
13	Control valve
14	Return flow temperature boost (e.g. TESBE type: LTC 200)
15	Circulation pump
16	Filling and draining fitting
17	Expansion tank
18	Discharge
19	Thermal discharge safety device (e.g. Watts)
20	Non-return valve

2.11 CHIMNEY CONNECTION / CONNECTING PIECES

The H₂O is connected to the chimney with the connecting pieces made of steel sheet at least 2 mm thick. These connecting pieces must satisfy the requirements specified in DIN 1298 and DIN EN 1856-2, and must be connected to the chimney / flue gas system in accordance with the requirements specified in DIN 18160 or the country-specific regulations. It must be ensured that the flue gas pipe is installed in the shortest possible route **upwards** towards the chimney. The number of bends in the flue gas pipe should be kept to a minimum. In addition, the flue gas pipe must be connected to the chimney with a bricked-in wall lining and sealed. The connecting pieces must be sealed if necessary! If the flue gas pipe is routed through components with flammable building materials, the flue gas pipe must be insulated as specified in the regulations. The connecting line must always be mounted in such a manner that it is possible to clean the connecting line **at any time**. This must be ensured through a sufficient number of cleaning openings. A gauge connection must be installed so that it is accessible for determination of the negative chimney pressure in the connecting line.

In H₂O RLU fuel cells observe the leaflet for space independent fuel cells!

2.12 TURBULATORS FOR THE VARIA 1V/1Vh H₂O XXL / FD(h) H₂O

Please note that turbulators are only installed in the flue gas ducts for the device variant Varia 1V/1Vh H₂O XXL. Removal occurs through the combustion chamber:

1. Take out the deflector plate
2. Turn the turbulator diagonally (**Fig. 5a**) and
3. Pull it downward into the combustion chamber (**Fig. 5b**)

Installation occurs in the opposite sequence.

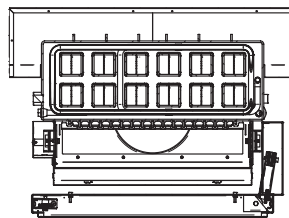


Fig. 5a

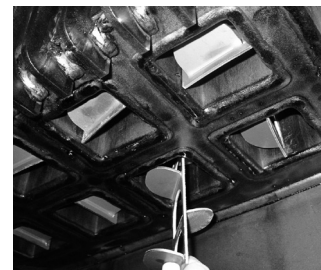


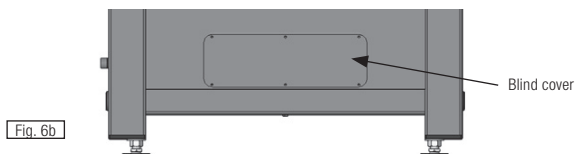
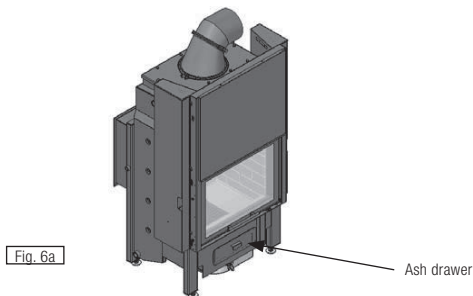
Fig. 5b

Note:

If there are draught problems, the turbulators in the flue gas ducts can be removed. However, through this measure, a lower capacity on the water-side of approx. 1-4% is possible.

2.13 CONVERSION – ASH DRAWER FOR THE VARIA FD/FDh/1VX/1VXh H₂O

The Varia FD/FDh/1VX/1VXh H₂O is factory equipped with an ash drawer (**Fig. 6a**) on the front or rear. It is possible to attach the ash drawer on the opposite side; if the necessary opening/flap is not desired in the customer-provided cladding, the conventional ash pan in the combustion chamber can be used. The opening of the ash drawer in this case must be sealed with a blind cover. The following conversion measures are necessary for both variants.



Changing the ash drawer:

1. Dismount the blind cover with seal. For this, 6 screws must be unscrewed (**Fig. 6b**).
2. Take out the ash drawer (**Fig. 6a**) and insert it on the opposite side.
3. The blind cover with seal must be mounted on the opposite side with 6 screws (**Fig. 6b**).

Ash pan:

Please order the items, blind cover, seal, and ash pan large.

1. Take out the ash drawer (**Fig. 6a**).
2. Mount the blind cover with seal and 6 screws on the appropriate side (**Fig. 6b**).
3. Insert the ash pan in the combustion chamber under the grate.

2.14 DOOR STOP/HEIGHT LIMITATION ONLY FOR THE VARIA 2Lh/2Rh H₂O

The elevating door is equipped with a variable door stop only for the Varia 2Lh/2Rh H₂O. This is factory set to the middle position, i.e. the opening height is set so that it is reduced by 50 mm. If the opening height should be further reduced (reduction of the opening height by 100 mm) or increased (maximum opening), the stops on both sides must be converted. After completion of the heating chamber, these stops can be reached through the gap between glass and door hood. The following work steps must be executed for this:

Shifting the door stop to maximum opening

1. Close the elevating door so that the fastening screws can be reached (see **Fig. 7d**).
2. Unscrew the M5x10 threaded screws on both sides of the device with a 4 mm Allen wrench (ball head). Fig. 7a: View from below between glass and door hood
3. Pull off the door stops in the direction of the red arrow. It is possible that these may have seized slightly and must be "levered off" from below with a slot-head screwdriver.
4. The door stops will no longer be required, however they should be kept on hand.

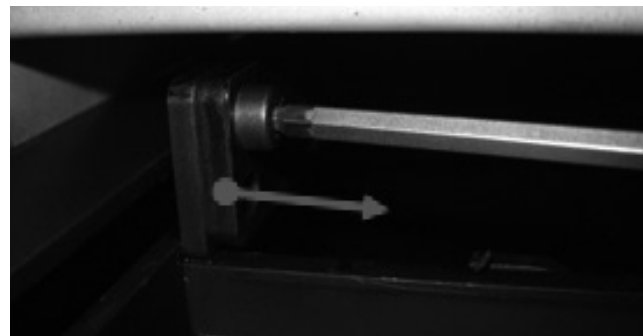


Fig. 7a

Shifting the stop to 100 mm reduced opening height

This setting can be used if the flue gas system is not suitable for open operation when putting more wood on the fire. By reducing the opening height of the door, the air mass flow rate is reduced.

1. Close the elevating door, so that the fastening screws can be reached.
2. Unscrew the M5x10 threaded screws on both sides of the device with a 4 mm Allen wrench (ball head).
3. Pull off the door stop in the direction of the red arrow. It is possible that it may have seized slightly and must be "levered off" from below with a slot-head screwdriver.
4. Insert the door stop with the long bracket toward the front of the device. Ensure that the door stops are not swapped out.



Left device side



Right device side

*The door hood has been removed only for the purpose of better documentation.

3. INITIAL COMMISSIONING

Heat generation systems must only be produced and installed by specialised companies. The initial commissioning must only be executed by an expert employee of the installation company. A certificate confirming proper installation and proper adjustment / function of all control components and safety components must be given to the owner / operator of the system.

The initial commissioning must only be executed after all necessary components are connected and all necessary safety devices are integrated and functional. Before the stove / fireplace insert is placed in service, it must be filled and ventilated on the heating side (heating network) and water side (thermal discharge safety device; safety heat exchanger). After the filling process, check all hydraulic connections for leaks. Operation without a water-side connection results in irreparable damage and invalidates any warranty claims!

The first four firings must each be executed with max. 2.0 kg/hour of dry and thin wood (max. circumference 25 cm). Through this measure the fireplace insert, the chamotte and the vermiculite are slowly tempered and thus the moisture that may be present due to storage, transport, etc. is slowly dissipated. If this does not occur, contamination of the area between the glass panes, as well as tearing of the chamotte are possible.

Attention: Underneath the fireplace insert up to 0.5 litres of concentrate can escape! This is not a leak!

The owner must be instructed in detail concerning the operation, function and maintenance of the overall system, including all supplemental components. In addition, the measures for maintaining safe operation of the system must be communicated to the owner. **The executed instruction must be documented in the commissioning protocol!** The installation and operating instructions must always be kept in good condition in the vicinity of the H₂O fireplace insert where they can be easily accessed. Additional

instructions concerning the general operation of the H₂O fireplace insert are provided in the operating instructions for Spartherm fireplace inserts.

The H₂O fireplace inserts/heating systems must be filled and vented before firing. In this process the heating system pressure must be checked (~1.5 bar). After commissioning venting must be executed daily. As soon as cold air no longer accumulates the interval can be extended.

The heating system and the stove/fireplace insert must be filled with water treated in accordance with VDI 2035 Sheet 1.

4. OPERATION

For operation, also comply with the operating instructions in the manual for our fireplace inserts. The information in these installation and operating instructions refers to special operation of a fireplace insert with integrated water heat exchanger.

- The combustion chamber door must be self-closing for multiple-connection flue gas systems. The door may only be opened to put on more firewood or for cleaning when in a cool state. Manipulation of the closing device is prohibited. If a single-connection system is present, the combustion chamber door must **not** be self-closing! However the combustion chamber doors must always be closed during combustion!

IMPORTANT: The provided heat-resistant glove serves only as thermal protection when activating the operating handle and the cold hand. The glove is not fire-proof.

- The distance between flammable parts/furniture and the view pane must be at least 80 cm!
- The fireplace insert is designed for the burning of dry, untreated wood logs with adhering bark and wood briquettes. Do not use other fuels.
- Operation in the partial load range results in low flue gas temperatures.

At continuous operation of the H₂O fireplace insert low flue gas temperatures can result in chimney damage if the chimney systems are not suitable. For this reason, we recommend that an hourly wood feed quantity of 5-6 kg during a burn day not be underranged.

- The thermally activated flue gas damper integrated in the heat exchanger of the the H₂O fireplace insert Mini Z1 H₂O-series, Nova E H₂O, Varia Ah H₂O and Varia AFDh H₂O automatically controls the function. At a sufficiently high flue gas temperature (approx. 150°C), the flue gas damper closes automatically. Thus the flow of flue gas is diverted through the heat exchanger. If the flue gas temperature drops under this temperature again, the flue gas damper opens. For better efficacy of the heat exchanger, the H₂O fireplace insert should be fired as uniformly as possible, and frequent burn-down to the basic embers should be avoided in order to obtain heat dissipation of the heat exchanger that is as uniform as possible and to avoid low chimney temperatures.
- Double glazing (IR reflective surface): Through application of oxidic coatings on the glass surface, infrared spectral components from the combustion chamber are reflected to a great extent. These coatings generate the interference colours (similar to a rainbow), the so-called IR reflective surface. Through this colouration, the quality characteristic of the "IR reflective surface" is visible, i.e. recognisable. This colouration cannot be removed.
- To operate the fireplace insert with nominal heat output, the following prerequisites are necessary.
- The fireplace insert must be heated up (wood has already been supplied 2-3 times).
- Combustion must be operated with a closed door.
- Chimney draught: 12-14 Pa
- Wood: Dry beech wood; (moisture < 18%)
- Wood feed quantity: „1.3 Technical data“
- Air setting: Approximately middle position, may need to be slightly adapted depending on local conditions (see example). During the combustion phase the air lever can be opened for several minutes.

- At a combustion time of approx. 60 minutes the total capacity of the fireplace insert that is output is approx. 10 kW.^{1.3} Technical data“



Example of wood placement

5. CLEANING AND MAINTENANCE

For cleaning, also comply with the information in the operating instructions of the fireplace inserts. The information in these installation and operating instructions refer only to the cleaning of the heat exchanger of the H₂O fireplace insert.

Bear in mind that through cleaning, contamination of the setup room and the clothing worn can occur. We recommend that you protect the area around the fireplace insert opening against contamination with foil or with a cloth.

5.1 CLEANING THE HEAT EXCHANGER

Cleaning the heat exchangers is absolutely necessary. The heat exchanger can only function at full efficiency if it is regularly and properly cleaned and serviced. Cleaning must always be executed in cooled-down status!

Because the heat exchanger directly cools down the flue gases of the H₂O fireplace insert, and this unavoidably results in deposits on the surfaces of the heat exchanger, these surfaces must be cleaned with the provided brush on a regular basis. Frequency of cleaning depends on several factors (use intensity, duration of burning, fuel, chimney draught, etc.) and a general statement concerning frequency cannot be made. Initially we recommend a cleaning after approximately 5 burn days. Then if contamination cannot be detected, the cleaning can be executed approximately every **20 burn days**. The cleaning intervals must be adapted to the local conditions. With the use of dry firewood and compliance with our recommendations, the cleaning intervals can be **significantly** extended. After the heating season ends, thorough cleaning of all components is necessary.

The heat exchanger is always cleaned through the combustion chamber of the fireplace insert. For this the fireplace door must be opened and the flame deflector plate (deflector plate) must be taken out of the combustion chamber. Next, the thermally activated flue gas damper (if present) is removed through the combustion chamber (see **Fig. 8a-b**). To do this, the damper is tilted slightly by the handle and taken out in a downwards direction. The thermal flue gas damper must only be cleaned of residues with a cloth or a brush. In this process pressure must not be exerted on the four wings of the flue gas damper. This could impair the function.

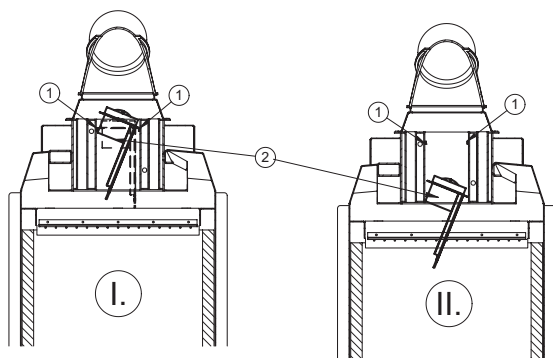


Fig. 8a

1	Support
2	Automatic flue gas damper with handle

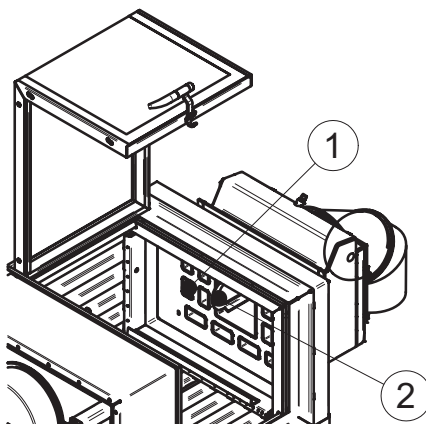


Fig. 8b

1	Heat exchanger pipe
2	Handle of flue gas damper

Subsequently, the heat exchanger pipes and the middle channel, as well as the outer surfaces of the heat exchanger and the flue gas manifold must be cleaned with the provided brush or a hand brush. Then the deposits fall automatically into the combustion chamber and they can be removed with standard aids (ash shovel, ash broom or an ash vacuum).

After cleaning, assembly is executed in the reverse sequence. First, hook in the thermal flue gas damper (introduce diagonally from below and place in on the supports). Then insert the flame deflector plate so that the flue gas gap is on the disc side.

5.2 CLEANING THE DOUBLE GLAZING

If the fireplace insert is equipped with double glazing, the owner must only clean the double glazing on the combustion chamber side and the installation room side, in accordance with the information in the operating instructions. If the inner panes in the hollow space are contaminated, then cleaning must only be executed by the customer service organisation or a trained specialised company. In operation, a slight bright shimmer may be seen between the glass panes. However these deposits do not constitute grounds for complaint.

5.3 BYPASS DAMPER VARIA 1V/1Vh H₂O/XL/XXL

To prevent the escape of heating gases, a bypass damper see FIG.9) is installed parallel to the heat exchanger in the front area. The bearing points are arranged directly next to the water connections and must be reachable for maintenance and service tasks. The bearing arrangement is on the left side of the device and can be reached from the combustion chamber.

The steel front is not shown in Fig. 9.

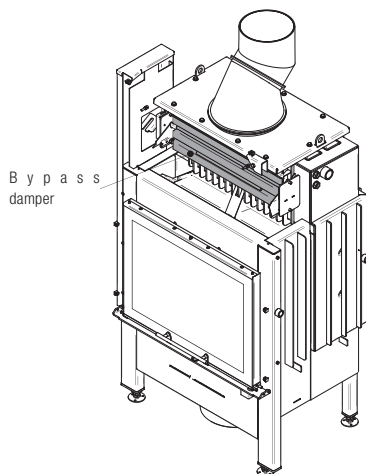


Fig. 9

5.4 MAINTENANCE OF THE HEAT EXCHANGER

At regular intervals during the heating season, the water pressure of the heating system must be checked. The H₂O fireplace insert must only be operated in a completely filled and ventilated state.

The technical heating inspection and checking of all safety devices (thermal discharge safety device, safety valve, etc.) and of the other components, such as the pump thermostat, is required yearly before the heating season. The instructions in the installation and operating manuals provided by the respective manufacturers of the components must be complied with. This check must only be executed by a specialised company that can ensure the functionality of the individual components. We recommend that you **conclude a maintenance contract** with your specialised company.

The yearly safety inspection (e.g. function check of the thermal discharge safety device, pump thermostat, safety valve, expansion

vessel, etc.) should occur before the heating season. The executed yearly safety inspections must be documented by your specialised company in the commissioning protocol! If there is a complaint, documentation of the maintenance tasks that have been executed must be submitted to service personnel.

6. GUIDE

Note: The fireplace must not be used as a waste incinerator! Furthermore, remember that the device is designed for temporary burning only. Continuous burning cannot be achieved even through withdrawal of the combustion air and is not permitted!

You can solve the following problems on your own:

Problem description	Solution
Thermal discharge safety device trips constantly (constant water outflow through the discharge). The water heat exchanger cannot dissipate heat to the heating system.	<ul style="list-style-type: none"> • The buffer tank is "full". Withdraw heat from the tank. • Check function and settings of the pump thermostat and the return flow boost. • Set the pump one level higher (higher flow rate). • Circulation pump does not run. Is the pump or power connection defective? • Return flow temperature too high, < 70°C • Check whether the shut-off elements are closed • Is sufficient heating water available?
Thermal discharge safety device drips.	<ul style="list-style-type: none"> • Contamination of the discharge safety device. • Flush the thermal discharge safety device by activating the red button on the fitting. • Check the seat of the connection seals and the piston (see the manual provided by the manufacturer). • If necessary, integrate filter in the system upstream of the discharge safety device (pay attention to the minimum flow rate!)
Gurgling noises, boiling noises in the water-bearing parts of the H ₂ O fireplace insert. (Air in the system)	<ul style="list-style-type: none"> • Check system pressure. • Ventilate system via the vent. For newly filled or topped up systems it takes some time for all the air to exit. Often ventilating once does not suffice.

Problem description	Solution
Radiators do not warm up.	<ul style="list-style-type: none"> • Close radiator thermostats when the set room temperature is reached. The convection heat of the fireplace is distributed in the air composite. • Depending on the configuration the heating system is sluggish. It takes some time until the heating system dissipates its heat. • Have the heating system hydraulically calibrated. • Check heating circuit pump for function. • Ventilate the system
Increasing and faster contamination of the combustion chamber lining and of the glass ceramics. The combustion chamber lining no longer burns free. Fire can only be ignited with difficulty	<ul style="list-style-type: none"> • Remove deposits in the heat exchanger and in the connecting line to the chimney. • Pay attention to correct firing, wood feed quantity, wood moisture content < 20%. • Check chimney draught • Check return flow temperature boost.

For other problems, contact your fireplace constructor / heating specialist!
Only use the spare parts offered by the manufacturer!

7. GENERAL WARRANTY CONDITIONS

7.1 APPLICATION AREA

These standard warranty terms apply for the contractual relationship between the manufacturer, Spartherm Feuerungstechnik GmbH, and the dealer/distributor. They are not congruent with the contractual and warranty terms which the dealer/distributor offers his customers in individual cases.

7.2 GENERAL INFORMATION

This product has been manufactured in compliance with current standards of quality control. The materials used have been carefully selected and - like the production process - are subject to on-going quality control. Specialist knowledge is required when setting up or installing the product. The product must, therefore, only be installed and commissioned into service by specialist technical staff, in compliance with current statutory provisions.

7.3 WARRANTY PERIOD

The standard warranty terms only apply within Germany and the European Union. The warranty period and scope of the warranty are ensured within the framework of these conditions outside the statutory warranty, which remains unaffected. The company Spartherm Feuerungstechnik GmbH offers a **5-year** warranty for

- Main carcass fireplace inserts
- Main carcass fireplace stoves
- Main carcass fireplace cassettes
- Main carcass fireplace doors

Spartherm Feuerungstechnik GmbH offers a **24-month** warranty in respect of the sliding door mechanism, operating components such as handles, setting levers, shock absorbers, electrical and electronic components such as fans, rotational speed controllers, the manufacturer's original spare parts, all items purchased as additional extras and all safety appliances. Spartherm Feuerungs GmbH offers a 6-month warranty in respect of consumables mounted in the combustion / firebox area, such as fire clay, vermiculite, fire grates, seals and glass ceramic.

7.4 WARRANTY REQUIREMENTS

The warranty period shall begin on the date, on which the product is delivered to the dealer / distributor. Invoices or delivery notes may be used as confirmation of the warranty commencement date. The warranty certificate for the product must be presented by the claimant upon making a warranty claim. Without submission of these verifications the company Spartherm Feuerungstechnik is not obligated to provide warranty performances.

7.5 EXCLUSIONS FROM THE WARRANTY

These warranty does not cover:

- Product wear

- Chamotte/vermiculite: These are natural products that expand and contract with every heating cycle. Heating / cooling cycles can cause cracks to occur. The combustion chamber linings will remain fully functional, provided they are still in position and are not broken.
- The surfaces: Discolouration in the paint or on galvanic surfaces, due to excessive thermal loading or over-heating.
- The elevating mechanism: failure to comply with installation guidelines, and the associated over-heating of the guide rollers and bearings.
- The seals: Reductions in sealing strength due to seal hardening as a result of thermal load and hardening.
- The glass ceramic: Contamination due to soot or other burned-in residues of combustion materials and visual deterioration due to thermal loading.
- Incorrect transport and/or incorrect storage:
- Inappropriate or careless handling of fragile components, such as glass or ceramics
- Improper operation and/or use
- Lack of maintenance
- Incorrect installation or device connection
- Failure to comply with installation guidelines or operating instructions
- Technical modifications made to the device by persons who are not employed by the company.

7.6 RECTIFICATION OF DEFECTS / REPAIR

Independent of any statutory provisions acknowledged as taking precedence over the terms of this guarantee, all necessary repair works resulting from material or manufacturing defect shall be carried out free-of-charge and shall not invalidate the remaining provisions of the warranty. Within the scope of this warranty promise Spartherm Feuerungstechnik GmbH reserves the right to either rectify the defect or replace the device free of charge. Rectification of defects shall take precedence. The terms of this warranty shall not extend to any damage or compensation not covered by statutory provisions.

7.7. EXTENSION OF THE WARRANTY PERIOD

The warranty period shall automatically be extended, where claims made in respect of these guarantee provisions result in the repair or replacement of defective equipment .

7.8 SPARE PARTS

Only the manufacturer's own components, or replacement parts recommended and approved by him, shall be used for appliance servicing and repair.

7.9 LIABILITY

Damages and claims for compensation which are not the result of delivery of a defective device from Spartherm Feuerungstechnik GmbH are excluded and are not part of this warranty promise. The above shall not include claims made in respect of statutory legal requirements.

7.10. FINAL COMMENTS

In addition to these warranty conditions and our commitment to them, our dealers and contractual partners are pledged to assist you in both word and deed. We expressly recommend that our fireplaces and stoves are regularly inspected by a qualified technician .

We reserve the right to make alterations to the technical data contained herein and accept no liability in respect of any errors made.

8. COMMISSIONING PROTOCOL

Date:	Device no.: (see rating plate)				
Address of heating system installation company:					
Stove fitter address:					
Heating system ventilated:	<input type="checkbox"/> Yes <input type="checkbox"/> No				
Operating pressure checked:	<input type="checkbox"/> Yes <input type="checkbox"/> No				
System tested for leaks:	<input type="checkbox"/> Yes <input type="checkbox"/> No				
All safety devices (Thermal discharge safety device, safety valve, membrane expansion vessel) checked:	<input type="checkbox"/> Yes <input type="checkbox"/> No				
Enter temperatures between insert and return flow boost:	Return flow temperature in °C				
	Flow temperature in °C				
Visual inspection of the heating system:	<input type="checkbox"/> Yes <input type="checkbox"/> No				
Function check executed:	<input type="checkbox"/> Yes <input type="checkbox"/> No				
The fireplace insert owner has been instructed relative to operation and the instructions for installation and operation have been handed out: Signatures:					
Installer	Stove Fitter	Owner			
Maintenance tasks to be executed yearly:					
Type of task:					
Name:					
Date:					
Signature					

IMPORTANT: Keep in a safe place!

Store these instructions with valid and clearly dated proof of purchase and have the documents ready for our technicians in the event of service work.

NOTES

This image shows a full page of blank graph paper. The grid consists of thin, light gray horizontal and vertical lines that intersect to form small squares across the entire surface. There are no margins, text, or other markings on the paper.

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