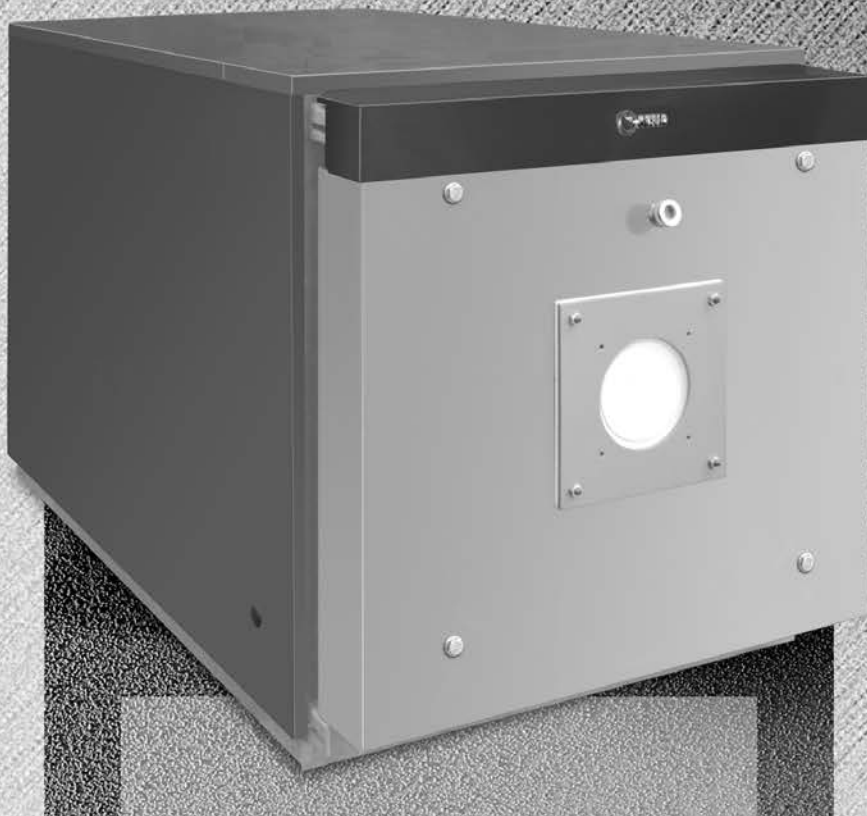


**STEEL BOILERS**

**RTQ 3S**

**35-55-70**

**INSTALLATION, OPERATION, MAINTENANCE  
AND SYSTEM MANAGEMENT MANUAL**



**RIELLO**

## CONFORMITY

**RTQ 3S RIELLO** boilers *conform* to the Efficiency Directive 92/42/CEE (☆☆☆).  
When used in conjunction with a CE marked jet burner, they also  
*satisfy* the requirements of the Gas Directive 2009/142/CE and applicable sections of the  
Electromagnetic Compatibility Directive 2004/108/CE and Low Voltage Directive 2006/95/CE.



## RANGE

MODEL	CODE
RTQ 35 3S	20025617
RTQ 55 3S	20025618
RTQ 70 3S	20025619

## PRODUCT DESCRIPTION

**RTQ 3S RIELLO** steel boilers are high efficiency boilers with horizontal, flame reversal combustion chambers and concentrically arranged flue gas pipes. They are designed for central heating and, when used in conjunction with a suitable storage cylinder, for domestic hot water production too.

Because they operate at low pressure, they provide a gradual heating action without thermal shock.

The most important technical features of these boilers are:

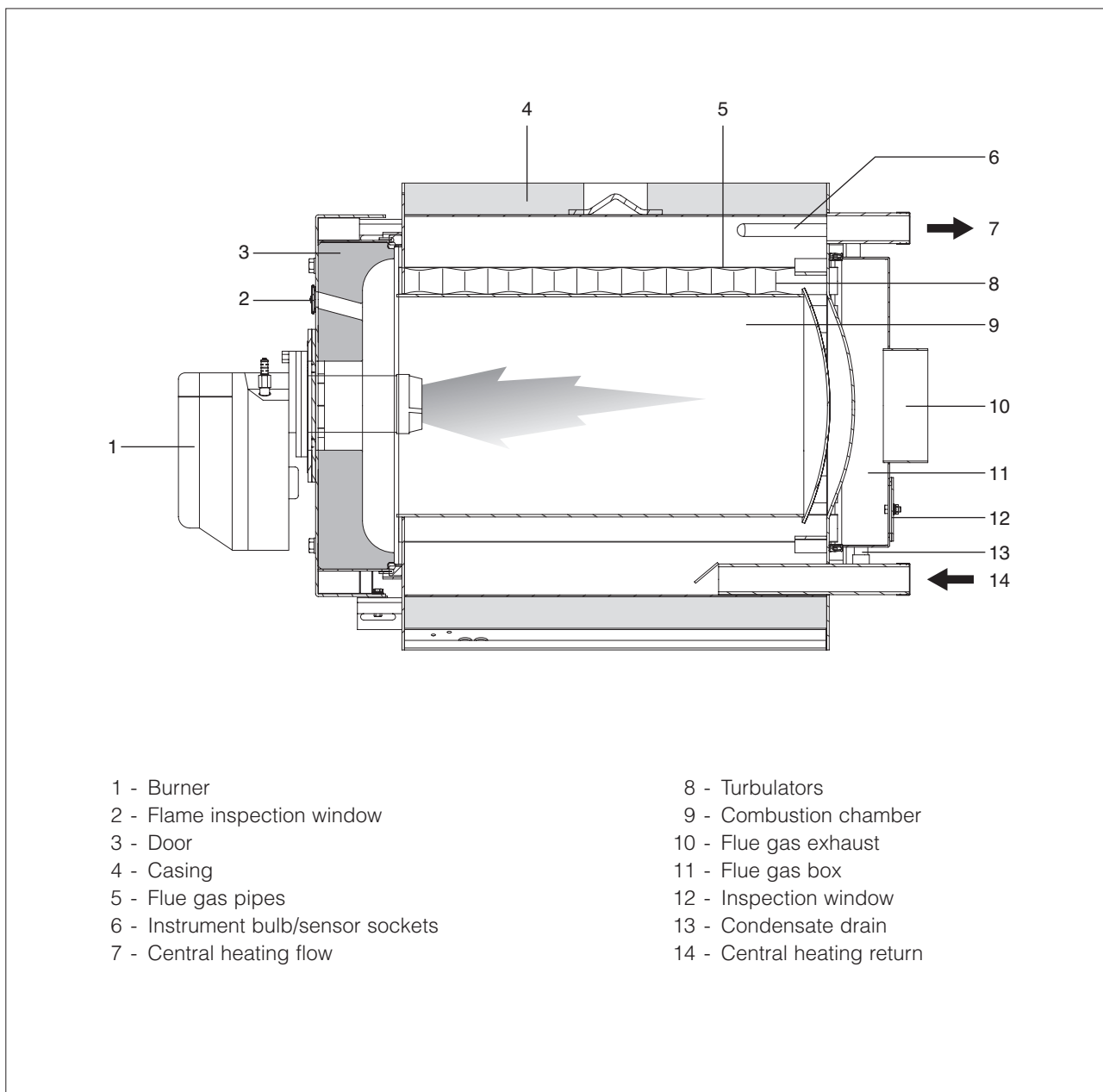
- The combustion chamber and heat exchange system are specially designed and shaped to achieve the best possible volume ratio.
- Only top quality materials are used to ensure a long working life.

Stainless steel turbulators inside the flue gas pipes establish an ideal pressure inside the combustion chamber and an ideal flue gas temperature. Evenly distributed thermal load optimises the efficiency of the boiler-burner system.

The boiler body is thoroughly insulated with a layer of high density glass wool.

The boiler's front door and the flue gas box can be opened completely to facilitate the inspection, maintenance and cleaning of internal parts and to speed up servicing in general.

The front door can open in either direction, even without removing the burner.



## TECHNICAL SPECIFICATIONS

DESCRIPTION	RTQ 35				
	35	55	70		
Fuel	GAS / OIL				
Rated heat input	min	25	35	55	kW
	max	34,8	55	69	kW
Rated useful heat output P <sub>n</sub>	min	23,6	33,3	51,8	kW
	max	32,8	51,6	65,0	kW
Useful efficiency at minimum P <sub>n</sub>		94,2	95,1	94,2	%
Useful efficiency at maximum P <sub>n</sub>		94,2	93,8	94,2	%
Useful efficiency at 30% (47°C)		95,9	95,5	95,9	%
Constant pressure drop		< 1,5		%	
Flue gas temperature		98	94	92	°C
Flue gas mass flow rate		0,015	0,024	0,030	kg/sec
Furnace pressure		0,4	0,9	0,6	mbar
Furnace volume		37,8	45,2	80,2	dm <sup>3</sup>
Total volume of flue gas side		62,2	73,4	119,1	dm <sup>3</sup>
Total surface area for heat exchange		1,90	2,50	3,02	m <sup>2</sup>
Volumetric heat load		921	1187	872	kW/m <sup>3</sup>
Specific heat load		17,8	21,3	22,4	kW/m <sup>2</sup>
Maximum operating pressure		6		bar	
Maximum admissible temperature		110		°C	
Maximum operating temperature		95		°C	
Min. admissible water return temp.		50		°C	
Pressure drop ΔT 10°C		10,0	20,0	40,0	mbar
Pressure drop ΔT 20°C		5,0	3,0	10,0	mbar
Water capacity		71	87	103	litres
Turbulators		14	16	22	n°

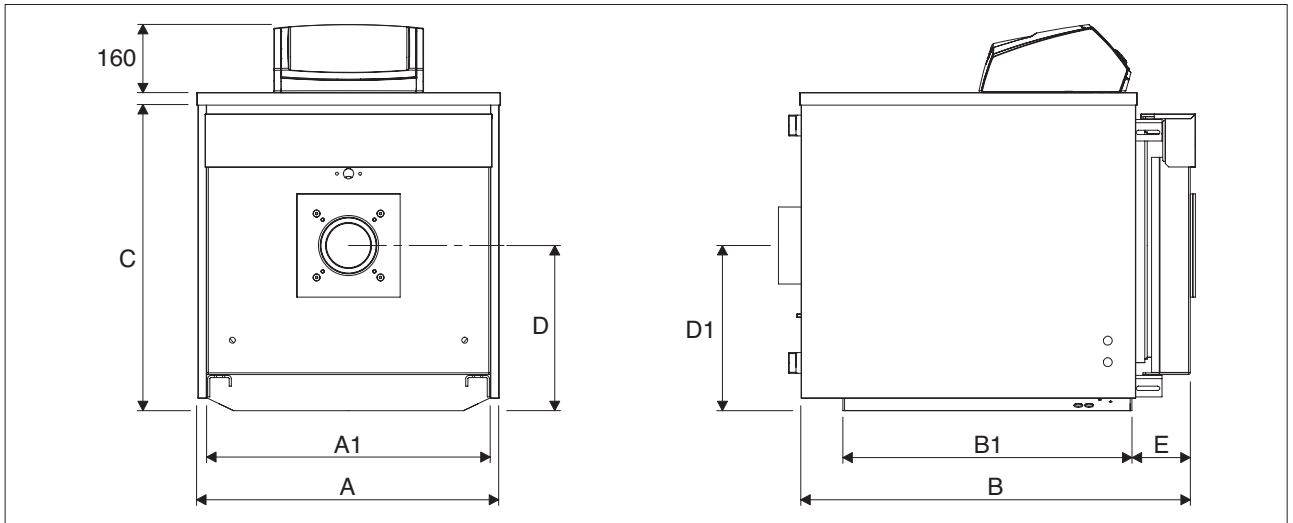
⚠ The stack must guarantee the minimum draught specified by applicable technical standards, assuming zero pressure at the connection to the flue gas exhaust.

⚠ Values obtained with **RIELLO** Models GULLIVER BS with CO<sub>2</sub> = 9,7%.

## ACCESSORIES

ACCESSORY	CODE
Hydraulic connection kit <b>RIELLO 7300</b>	4030030

## OVERALL DIMENSIONS AND WEIGHTS



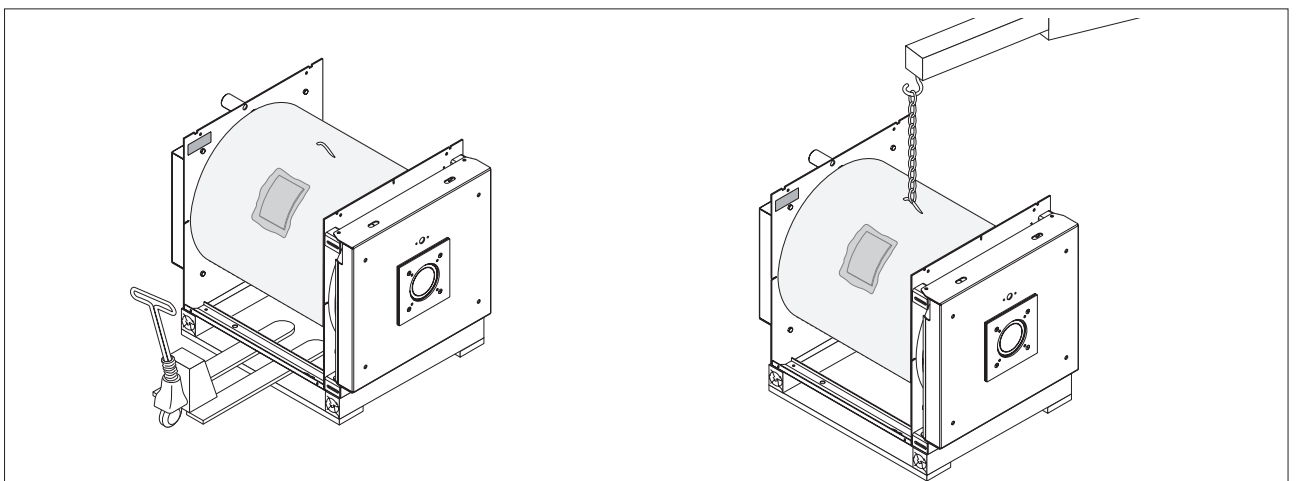
DIMENSIONS	RTQ 3S			
	35	55	70	
A - Width	605	605	705	mm
A1 - Base width	560	560	660	mm
B - Depth	830	980	910	mm
B1 - Base depth	623	773	672	mm
C - Height	605	605	740	mm
D - Burner height	310	310	384	mm
D1 - Flue height	325	325	384	mm
E - Door depth	110	110	135	mm
Weight of boiler	119	140	177	Kg
Weight of casing	18	20	22	Kg

## HANDLING

**RTQ 3S RIELLO** steel boilers are fitted with lifting attachments. Take great care when moving them and only use lifting equipment of adequate capacity.

Remove the fixing screws and remove the wooden pallet before positioning the boiler.

**!** Wear suitable personal protective equipment and use suitable safety devices.



## INSTALLATION IN OLDER SYSTEMS AND SYSTEMS REQUIRING MODERNISATION

When installing these boilers in old systems or systems requiring modernisation, always perform the following checks:


- Make sure that the stack is able to withstand the temperature of the combustion gases and that it has been designed and made in compliance with applicable standards. The stack must also be as straight as possible, sealed, insulated and not blocked or choked.
- Make sure that the electrical system has been installed by a qualified electrician in compliance with applicable standards.
- Make sure that the oil feed line and any oil storage tank

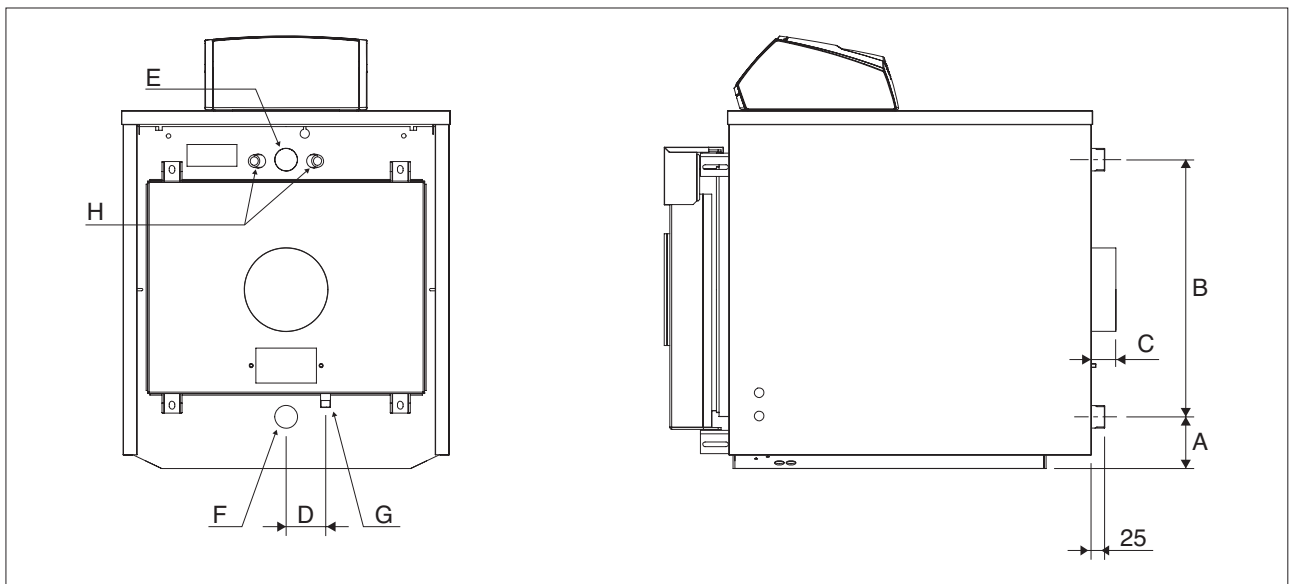
are made and installed in compliance with applicable standards.

- Make sure that the expansion vessels are big enough to contain the volume generated by thermal expansion.
- Make sure that flow rate, head and direction of flow of the pumps are suitable and correct.
- Make sure that the circuit has been flushed out to remove all sludge and lime scale, and has been vented and seal tested.
- Make sure that a suitable water treatment system is installed if the quality of the supply/recirculation water so demands. (See page 20).

## WATER CONNECTIONS

**RTQ 3S RIELLO** boilers are designed and made for use in central heating installations, but can also be used for domestic hot water production if connected to a suitable storage cylinder. Water fittings are as specified in the following table.

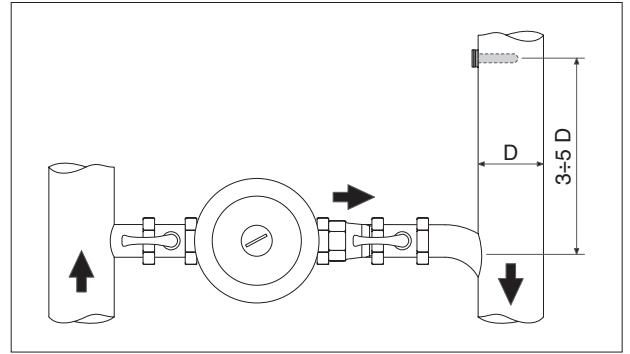
 Allow for the dimensions of the control panel that needs to be installed on top of the boiler.



DIMENSIONS	RTQ 3S			
	35	55	70	
A - Return-base distance	85	85	110	mm
B - Delivery/return centre to centre distance	455	455	552	mm
C - Flue gas discharge projection	50	50	60	mm
D - Del./ret. centre to centre distance condensation safety/discharge	75	75	85	mm
E - System delivery	1" 1/4	1" 1/4	1" 1/2	Ø
F - System return/boiler discharge	1" 1/4	1" 1/4	1" 1/2	Ø
G - Flue pipe condensation discharge	1/2"	1/2"	1/2"	Ø
H - Instrument bulb / sensor socket	G 1/2" - Ø 16			Ø

## ANTI-CONDENSATE PUMP

An anti-condensate pump operates during periods of no heat request to avoid damage until the boiler returns to a stable operating temperature. While the system is operating, this pump must guarantee a flow rate between 20 and 30% maximum flow to ensure a water return temperature no lower than 55 °C. Pump shutdown must also be delayed for at least 3 minutes at the beginning of extended periods of boiler shutdown (overnight or weekend shutdown etc.).



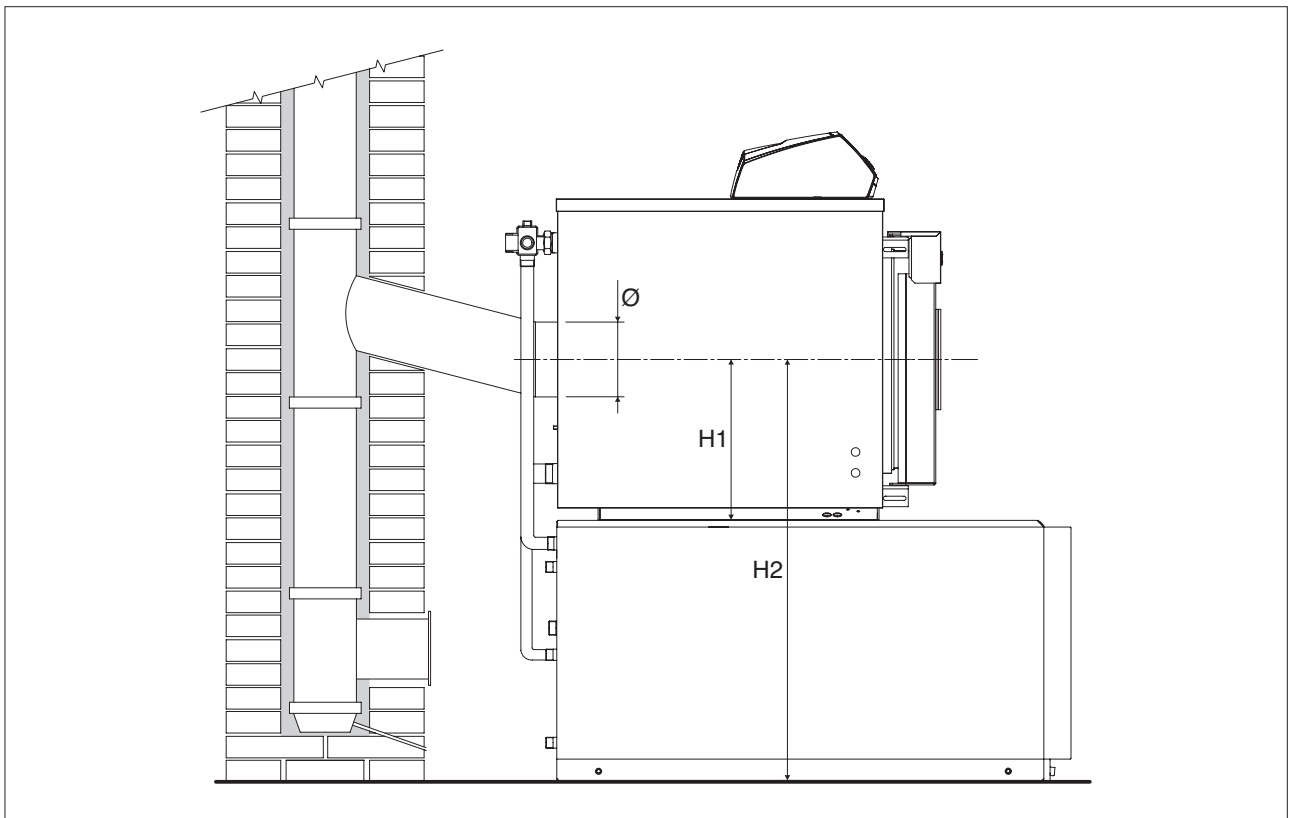
⚠ A sensor socket must be positioned at a distance of 3 to 5 times the diameter of the water return pipe, upstream from the water fitting, to measure effective water return temperature and control the anti-condensate pump or the temperature controller stabilisation function.

⚠ Any temperature controllers installed remotely from the control panel must be compatible with the system's electrical connections and functioning logic.

## COMBUSTION GAS EXHAUST

The flue gas exhaust and its connection to the stack must be made in compliance with applicable laws and standards, using heat resistant, condensate resistant and stress resistant rigid pipe and sealed joints.

DIMENSIONS (mm)	RTQ 35		
	35	55	70
Ø	139	139	179
H1	325	325	384
H2 (with heater)	950	950	1010



# **RIELLO**

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