

# 7000 ACI PLUS

EN INSTALLATION, OPERATION AND MAINTENANCE MANUAL

# RIELLO

## RANGE

MODEL (Hot-cold version)	CODE
RIELLO 7000 ACI 800 PLUS	20137619
RIELLO 7000 ACI 1000 PLUS	20137620
RIELLO 7000 ACI 1500 PLUS	20137622
RIELLO 7000 ACI 2000 PLUS	20137624

MODEL (Cold version)	CODE
RIELLO 7000 ACI 800 PLUS C	20136268
RIELLO 7000 ACI 1000 PLUS C	20136269
RIELLO 7000 ACI 1500 PLUS C	20136270
RIELLO 7000 ACI 2000 PLUS C	20136271

## ACCESSORIES

For a complete list of accessories and details of their compatibility, refer to the Catalogue.

Dear heating engineer,

We would like to congratulate you on having recommended a **RIELLO** buffer tank unit: a modern product that's capable of ensuring a high degree of reliability, efficiency, quality and safety. While your technical skills and knowledge will certainly be more than sufficient, this booklet contains all the information that we have deemed necessary for the device's correct and easy installation.

Thank you again, and keep up the good work,

Riello S.p.A.

## CONFORMITY

**RIELLO** buffer tanks conform to EN standard 10025.

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The following symbols are used in this manual:

 **CAUTION!** = Identifies actions that require caution and adequate preparation.










 **STOP!** = Identifies actions that you MUST NOT do.

## 1 GENERAL SAFETY INFORMATION

-  Check that the product is complete, undamaged and as ordered as soon as you receive it. Report any discrepancies or damage to the **RIELLO** dealer who sold it.
-  This product must be installed by a legally qualified heating engineer. On completion of the installation, the installer must issue the owner with a declaration of conformity confirming that the installation has been completed to the highest standards in compliance with the instructions provided by **RIELLO** in this instruction manual, and that it conforms to all applicable laws and standards.
-  This product must only be used for the purpose for which it is designed and made, as specified by **RIELLO**. **RIELLO** declines all responsibility, contractual or other, for damage to property or injury to persons or animals caused by improper installation, adjustment, maintenance or use.
-  The product must be serviced at least once a year. Servicing must be arranged in advance with the **RIELLO** Technical Assistance Service.
-  All servicing and repairs must be performed by a qualified heating engineer.
-  If water leaks from the storage cylinder, turn off the water supply and contact **RIELLO's** Technical Assistance Service or a qualified heating engineer immediately.
-  If the product is not going to be used for an extended period of time, contact the manufacturer's Technical Assistance Service to have at least the following operations performed:
  - Close the shut-off cocks for the domestic hot water circuit
  - Shut down the boiler connected to the storage cylinder as instructed in its own manual
  - Switch the storage cylinder OFF at the control panel (if fitted) and at the mains power switch
  - Drain the central heating circuit and domestic hot water circuit if there is any risk of freezing.
-  This instruction manual is an integral part of the product. It must be kept safe and must ALWAYS accompany the product, even if it is sold to another owner or transferred to another user or to another installation. If you lose this manual, order a replacement immediately. Keep the product purchase documents to be presented to the **RIELLO** authorised Technical Assistance Service to request a service call under warranty.
-  If the product is destined for use in a solar collector circuit, anti-freeze (propylene glycol, available separately) must be mixed with water in a percentage varying from 30% to 50% as instructed in the installation and maintenance manual for the **RIELLO** solar collectors.

## 2 PRECAUTIONS

The operation of any appliance that uses electrical power demands that a number of fundamental safety precautions be respected. In particular:

-  Never attempt to install the system without using suitable personal protection equipment and without following all applicable occupational safety standards.
-  Do not touch the product when barefoot or wet if it has any electrical accessories installed in it.
-  Never clean or service the storage cylinder without first turning the mains power switch OFF to disconnect all electrical accessories (if fitted) from the mains electricity supply.
-  Never pull, disconnect, or twist any electrical cables coming from the appliance even if it is disconnected from the mains electricity supply.
-  Do not expose the storage cylinder to the elements. It is not designed for use outdoors.
-  If solar plant pressure decreases, it is forbidden to top up with only water as there is a danger of freezing and overheating.
-  Do not use connections or safety devices or fittings (expansion vessels, pipes, insulation) that are not specifically designed and tested for use in solar water heating systems.
-  Do not allow children or infirm persons to operate the system unsupervised.
-  Do not dispose of packaging material into the environment, or leave it within the reach of children, since it can become a potential hazard. Dispose of packaging material in compliance with applicable legislation.

### 3 DESCRIPTION OF THE APPLIANCE

**RIELLO 7000 ACI PLUS** buffer tanks can be used in conjunction with chiller systems, solar panels, heat pumps and wood burning boilers but are not designed to produce domestic hot water. These buffer tanks can be connected in a variety of ways to maximise flexibility in system layout.

The most important design features of the product are:

- special tank design and shape for optimum performance in terms of stratification, heat exchange and replenishment time
- the provision of fittings at different heights for high and low temperature circuits
- CFC and HCFC free PEXL + Soft polyurethane insulation and an elegant external casing to reduce heat loss and improve efficiency

**RIELLO 7000 ACI PLUS** buffer tanks are easy to integrate in systems in which **RIELLO** boilers or other products act as auxiliary heat sources.

### 4 IDENTIFICATION

**RIELLO 7000 ACI PLUS** buffer tanks are identified by:

#### Data plate

It indicates the technical and performance data.

RIELLO		RIELLO S.p.A. Via Ing. Filadeo Rialto 7 37045 Lagnago (VR) - ITALY		CE
Pufferspeicher STORAGE CYLINDER VOORRAADTANK				
Model		Seriennummer		
Model		Serial number		
Kode	Baujahr	Year		
Code	Boujaar	Year		
Speicherkapazität		Storage cylinder capacity		
Accumulecapaciteit		Accumulecapaciteit		
Max. Betriebsdruck Speicher		Max. working pressure of cylinder		
Max. bedrijfsdruk accumulator		Max. bedrijfsdruk accumulator		
Max. Betriebstemperatur Speicher		Max. working temperature of cylinder		
Max. bedrijfstemperatuur accumulator		Max. bedrijfstemperatuur accumulator		
Wärmeverluste		Heat loss		
Warmteverliezen		Warmteverliezen		
Stromaufnahme		Electrical consumption		
Opgenomen elektr. vermogen		Opgenomen elektr. vermogen		
Stromversorgung		Power supply		
Elektrische voeding		Elektrische voeding		
Erdschluss ist Vorschrift - Obligatory ground connection - Aarding verplicht				

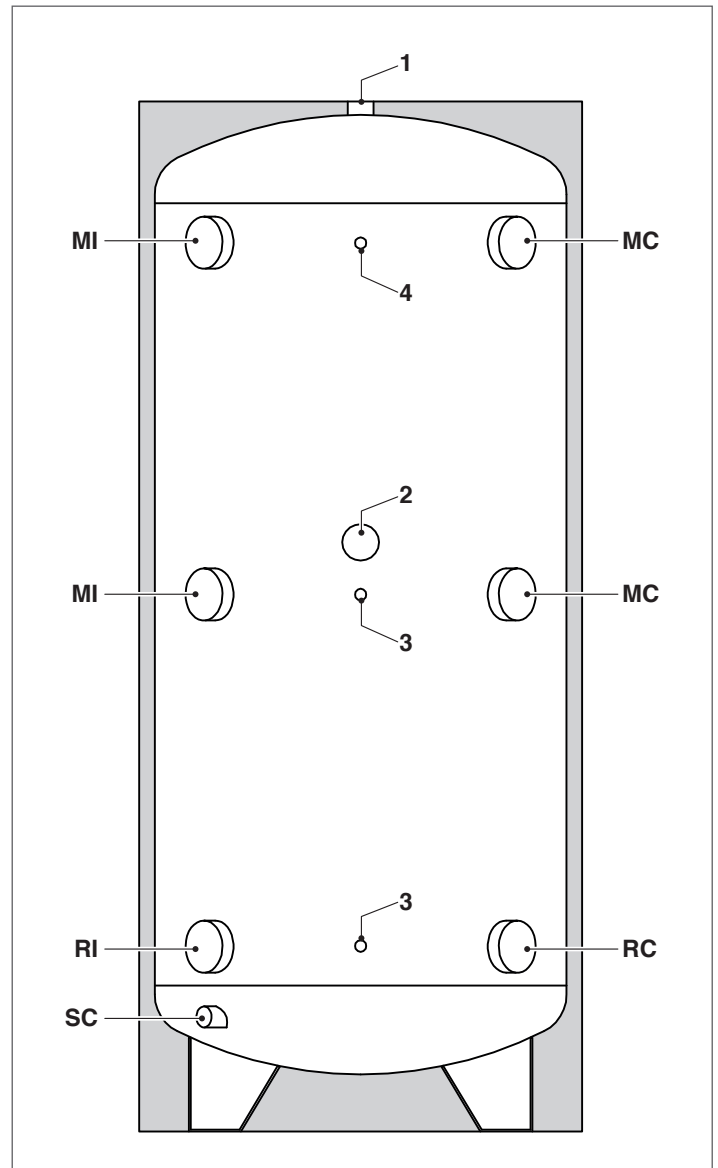
RIELLO		RIELLO S.p.A. Via Ing. Filadeo Rialto 7 37045 Lagnago (VR) - ITALY		CE
Seriennummer	Max. Betriebsdruck Speicher	bar		
Serial number	Max. working pressure of cylinder	bar		
Model	Speicherkapazität	Storage capacity		
Model	Accumulecapaciteit	Accumulecapaciteit		

#### Serial number plate

This specifies the serial number and model.

**⚠** If these plates or any other means of clearly identifying the product are defaced, removed or lost, proper installation and servicing may be rendered difficult.

### 5 SYSTEM LAYOUT



- 1 Vent
- 2 Fitting for electrical heating element
- 3 Temperature sensor sockets
- 4 Temperature gauge socket

- MI Central heating flow  
 MC Outlet from boiler  
 RI Central heating return  
 RC Return to boiler  
 SC Drain

## 6 TECHNICAL SPECIFICATIONS




DESCRIPTION	7000 ACI PLUS (Hot-cold version)				
	800	1000	1500	2000	
Type of buffer tank	Non vitrified				
Tank layout	Vertical				
Buffer tank capacity	732	855	1420	2013	l
Diameter with insulation	990	990	1200	1300	mm
Diameter of storage cylinder without insulation	790	790	1000	1100	mm
Height with insulation	1800	2050	2165	2480	mm
Height without insulation	1725	1975	2090	2405	mm
Insulation thickness	100				mm
Maximum operating pressure	6				bar
Maximum operating temperature	99				°C
Net weight with insulation	115	170	185	305	kg
Diameter of sensor socket	8				mm
Discharges according to EN 12897:2006 ( $\Delta T=45$ °C, ambient 20°C and storage at 65°C)	131	139	168	190	W
	3,14	3,34	4,03	4,03	kWh/24h
Insulation type	20 mm PEXL + 80 mm Soft PU				

DESCRIPTION	7000 ACI PLUS C (Cold version)				
	800	1000	1500	2000	
Type of buffer tank	Non vitrified				
Tank layout	Vertical				
Buffer tank capacity	732	855	1420	2013	l
Diameter with insulation	850	850	1060	1160	mm
Diameter of storage cylinder without insulation	790	790	1000	1100	mm
Height with insulation	1725	1975	2090	2405	mm
Height without insulation	1725	1975	2090	2405	mm
Insulation thickness	30				mm
Maximum operating pressure	6				bar
Maximum operating temperature	99				°C
Net weight with insulation	101	150	164	279	kg
Diameter of sensor socket	8				mm
Discharges according to EN 12897:2006 ( $\Delta T=45$ °C, ambient 20°C and storage at 65°C)	471	528	726	913	W
	11,3	12,67	17,42	21,91	kWh/24h
Insulation type	Soft PU shells				

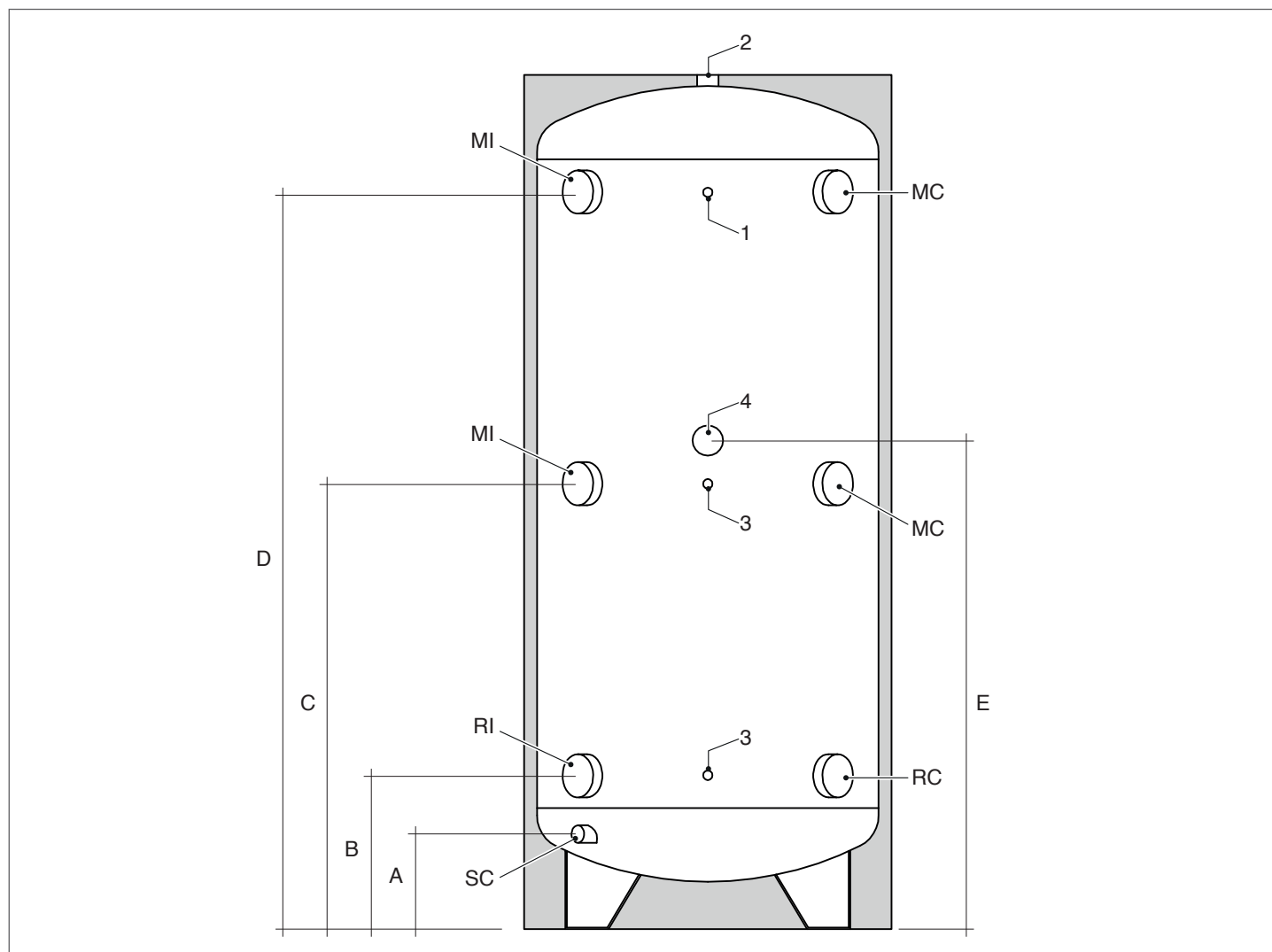
(\*) In accordance with DIN 4708 with a T of 20°C (80°/60°C) at the coil.

## 7 LOCATION OF SENSORS

**RIELLO 7000 ACI PLUS** buffer tanks incorporate sockets for temperature control sensors.

-  The actual positioning of sensors depends on what components, water connections and control device are installed.
-  **The installer is responsible for making all necessary connections to the boiler and solar collectors. Installers must use their expertise to ensure proper installation and functioning in compliance with all applicable legislation.**
-  In case of a probe, any electric junction between probe cable and extensions for the connection to the electric panel must be soldered and protected with a sheath or a suitable electric insulation.

## 8 OVERALL DIMENSIONS AND WATER FITTINGS



DESCRIPTION		7000 ACI PLUS – PLUS C				
		800	1000	1500	2000	
1	Temperature gauge socket	1/2" F				Ø
2	Vent valve fitting	1"1/4 F				Ø
3	Sensor sockets	1/2" F				Ø
4	Fitting for electrical heating element (not supplied)	1 1/2" F	2" F (*)			Ø
MI	CH flow	3" F		4" F		Ø
RI	CH return	3" F		4" F		Ø
SC	Drain	1" F				Ø
RC	Return to boiler	3" F		4" F		Ø
MC	Outlet from boiler	3" F		4" F		Ø
A		220	220	250	250	mm
B		355	355	415	415	mm
C		905	1030	1080	1230	mm
D		1455	1705	1745	2045	mm
E		990	1130	1180	1330	mm

(\*) A 2" M – 1 1/2" F adapter with galvanised plug is fitted as standard

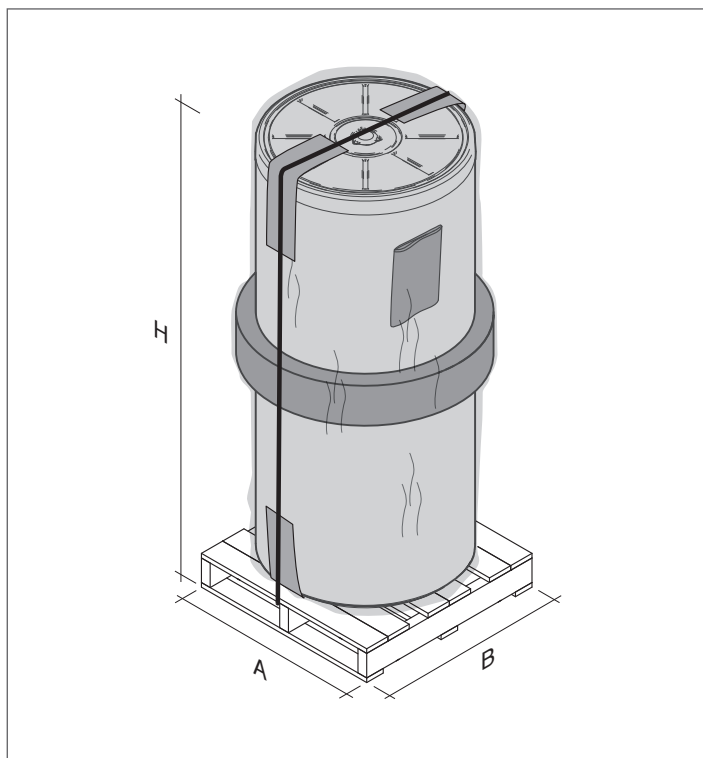
**⚠** We recommend that you install isolating valves in the outlet and return lines.

**⚠** Check the efficiency of the seals when filling/refilling the buffer tank.

## 9 UNPACKING THE PRODUCT

**RIELLO 7000 ACI PLUS** buffer tanks are delivered in a single package, protected by a plastic bag and secured to a wooden pallet. The following items are delivered in a plastic bag inside the packaging:

- Instruction manual
- Bar code labels
- Hydraulic test certificate

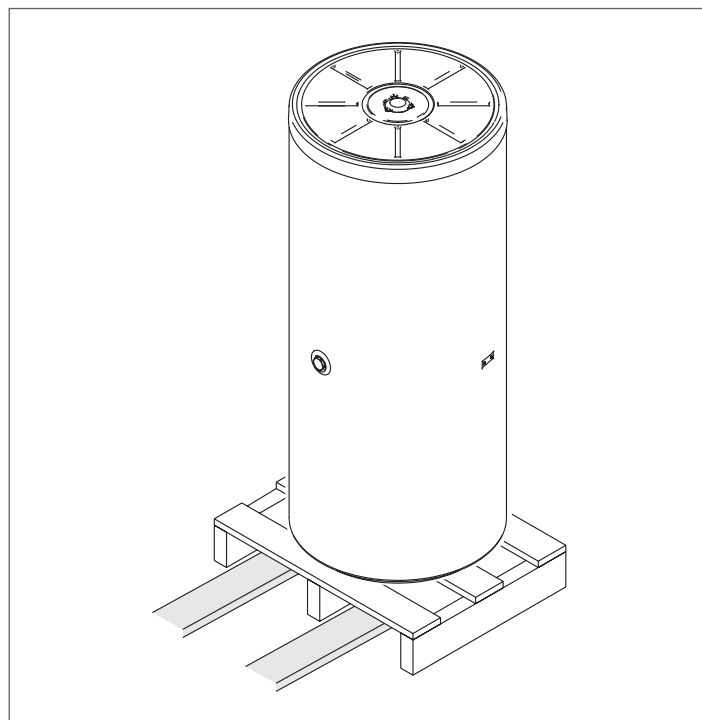


7000 ACI PLUS	A	B	H	Gross weight (kg)
800	1000	1000	1950	134
1000	1000	1000	2200	189
1500	1200	1200	2315	213
2000	1300	1300	2630	335

7000 ACI PLUS C	A	B	H	Gross weight (kg)
800	900	900	1875	112
1000	900	900	2125	168
1500	1200	1200	2240	190
2000	1200	1200	2555	305

## 10 HANDLING

Once you have removed the outer packaging, proceed as follows to unpack and handle the buffer tank.

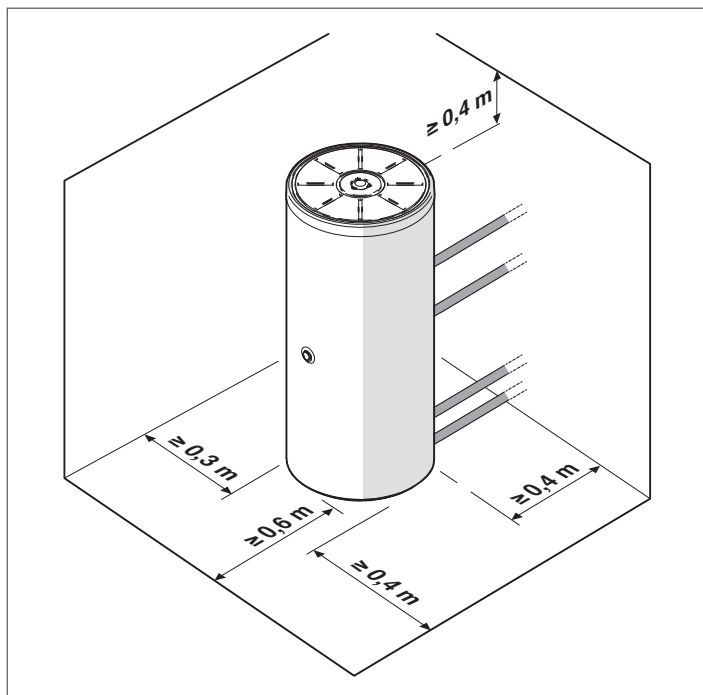


- ⚠** Wear suitable personal protective equipment and use suitable safety devices.
- 🚫** Do not dispose of packaging material into the environment, or leave it within the reach of children, since it can become a potential hazard. Dispose of packaging material in compliance with applicable legislation.



## 11 PLACE OF INSTALLATION

**RIELLO 7000 ACI PLUS** buffer tanks can be installed in any room where there is no specific requirement for an electrical protection rating higher than IP X0D.



**⚠** Respect the minimum specified installation distances to ensure correct installation and access for maintenance.

## 12 INSTALLATION IN OLDER SYSTEMS AND SYSTEMS REQUIRING MODERNISATION

When installing **RIELLO 7000 ACI PLUS** buffer tanks in old systems or systems requiring modernisation, always perform the following checks.

- Make sure that the system is fitted with safety and control devices in accordance with applicable legislation and standards
- Make sure that the central heating 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 (refer to the reference values listed in the table alongside).

REFERENCE VALUES	
pH	6-8
Electrical conductivity	less than 200 $\mu\text{S}/\text{cm}$ (25°C)
Chlorine ions	less than 50 ppm
Sulphuric acid ions	less than 50 ppm
Total iron	less than 0.3 ppm
Alkalinity M	less than 50 ppm
Total hardness	less than 35°F
Sulphur ions	none
Ammonia ions	none
Silicon ions	less than 30 ppm

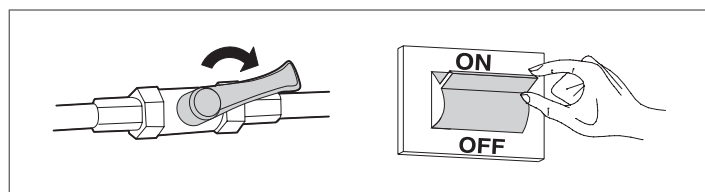
## END USER INSTRUCTIONS

Refer to the **GENERAL SAFETY INFORMATION** and **PRECAUTIONS** section for safety-related information.

### 13 START-UP

The buffer tank must be put into service for the first time by personnel from the manufacturer's Technical Assistance Service. Under certain circumstances, such as after long periods of disuse, the user may need to re-start it without involving the Technical Assistance Service. Before doing so, perform the following checks and operations.

- Check that the supply cocks in the domestic water circuit are all open
- Switch the electricity supply ON at the mains power switch and at control panel switch (if fitted).



### 14 TEMPORARY SHUTDOWN

To reduce impact on the environment and save energy, before leaving for the weekend or a short break, etc., provided outdoor temperatures will remain above ZERO, simply adjust the buffer tank's temperature control device to its minimum setting.



If outdoor temperature may drop below ZERO (risk of freezing) perform the operations described in the "Preparing for extended periods of disuse" section.

### 15 PREPARING FOR EXTENDED PERIODS OF DISUSE

If the buffer tank is not going to be used for an extended period of time, ask the manufacturer's Technical Assistance Service to make the system safe.

### 16 EXTERNAL MAINTENANCE

Clean the cover, painted and plastic parts with a cloth dampened in soap and water. To remove stubborn marks, use a cloth dampened in a 50% mix of water and denatured alcohol or a suitable cleaning product.



Do not use fuels, sponges impregnated with abrasive solutions or powder detergents.

## 17 RECYCLING AND DISPOSAL

At the end of its useful working life, do not abandon the buffer tank in the environment, but dispose of it through the proper channels in accordance with applicable legislation.

## 18 TROUBLESHOOTING

FAULT	CAUSE	SOLUTION
<b>The buffer tank functions incorrectly or irregularly</b>	Flow rate too high	<ul style="list-style-type: none"> <li>- Fit a pressure limiter</li> <li>- Fit a flow reducer</li> </ul>
	There are blockages or deposits in the buffer tank	<ul style="list-style-type: none"> <li>- Check and clean as necessary</li> </ul>
	Filling pump not functioning	<ul style="list-style-type: none"> <li>- Check the pump</li> </ul>
	The water temperature from the boiler is too low	<ul style="list-style-type: none"> <li>- Check the temperature setting</li> </ul>
	There is air in the primary circuit	<ul style="list-style-type: none"> <li>- Bleed the circuit</li> </ul>
<b>The safety valve is not functioning correctly</b>	The safety valve is blocked or faulty	<ul style="list-style-type: none"> <li>- Clean or change the valve</li> </ul>
<b>Water flows out of the safety valve</b>	Valve faulty	<ul style="list-style-type: none"> <li>- Replace the valve</li> </ul>
	Circuit pressure too high	<ul style="list-style-type: none"> <li>- Install a suitable pressure reducing device</li> </ul>

# RIELLO

The manufacturer strives to continuously improve all products. Appearance, dimensions, technical specifications, standard equipment and accessories are therefore liable to modification without notice.