

Installation and maintenance instructions

AquaTank 316, stainless steel



EN

This manual is published by Cetetherm.

Cetetherm can without further notice make changes and improvements to the content in this manual if it is necessary due to printing mistakes, wrong information or changes in the hardware or software. All these types of changes will be included in future release of the manual.

Content

1	General	4
1.1	General information	4
1.2	Intended use	4
1.3	Misuse	4
1.4	Regulations and standards	4
1.5	Health and safety instructions	4
	Warning against your own conversions and changes: For safety reasons, you must not convert or modify the vessel yourself. The guarantee covering the vessel will inevitably lapse if you do.	5
1.6	Water quality	5
1.6.1	Water hardness	5
1.6.2	Free chlorine	5
1.7	Warranty	5
2	Installation.....	6
2.1	Siting	6
2.1.1	Space required	6
2.1.2	Substrate/foundation/load-bearing capacity	6
2.2	Connection	6
2.2.1	Electrical connection	6
3	Commissioning & Operation.....	7
3.1	Maintenance	7
4	Design data	8
4.1	Ratings	8
4.2	Material	8
4.3	Insulation characteristics	8
5	Dimensions and technical data.....	9
5.1	AQUATANK 316 Ti/L	9
5.2	AQUATANK 316 Ti/L HC	10
6	Tap water heating capacity	11
6.1	Characteristics	11
7	Warranty	12
7.1	Exclusion factors:	12
7.2	Spare parts	12
7.3	How to contact Cetetherm	12
8	Connection of 1 or 2 tanks to a Tap Water System	13
9	Neodul-Installation.....	14
10	Connections	17
10.1	AQT316Ti/L	17
10.2	AQT316Ti/L HC	17

1 General

1.1 General information

Cetetherm owns the copyright to these instructions. Details, pictures and drawings contained in these instructions may not be reproduced, distributed or sold for competition purposes or disclosed to others without authorization.

Cetetherm reserves the right, without prior notification, to make technical changes compared with the illustrations and information contained in these instructions, should it necessary for improving the AquaTank. These instructions provide important information that is necessary to ensure that the storage vessel is both reliable and safe. The operating/installation personnel must have access to these instructions. Therefore, please make sure that a copy of these instructions is available in plenty of time.

If the AquaTank is sold to a third party, or there is a change of owner, please pass on these instructions to the new owner. Please let us have the name and address of the new owner for the unlikely event that we need to contact them regarding the safety of the installation.

Read these instructions carefully before installing the equipment. Pay attention to the safety information.

1.2 Intended use

The Cetetherm AquaTank 316, is a hot water storage vessel and is used to store potable water for normal use in potable water supply systems and is suitable for group or central drinking water supplies.

Using the equipment as intended also includes following these operating instructions, the maintenance conditions and design data specified.

1.3 Misuse

Any use that exceeds the use described above is misuse. The manufacturer is not liable for damage resulting from misuse. The operator bears the risk. Please keep the order data/article numbers of the AquaTank handy so that we can deal with your needs and spares orders promptly.

1.4 Regulations and standards

Any use that exceeds the use described above is misuse. The manufacturer is not liable for damage resulting from misuse. The operator bears the risk. Please keep the order data/article numbers of the AquaTank handy so that we can deal with your needs and spares orders promptly. Safety information

The AquaTank must be connected according to the common regulations and standards of your country.

Each hot water storage system or storage vessel must be equipped with safety devices.

Controls and instruments or safety devices are not included in the delivery of the cylinder.

Do not place any shut-off between the safety device and the cylinder.

The reliability of the safety device has to be documented by a certificate.

Keep the blow-off pipe / tundish always open. Blow-off pipes and drip pipes must be arranged so that nobody is exposed to the hot water if it escapes.

Manually open every now and then the safety device to test its function.

1.5 Health and safety instructions

The hot water storage tank is state of the art and reliable in operation. However, it can be dangerous if it is incorrectly operated or maintained by unqualified personnel or is not used as intended.

Anyone responsible for its operation and maintenance must have read and understood the health and safety information.

The vessel, particularly its safety equipment, may only be operated and maintained by people (qualified people) who are fully conversant with it and have been informed of the dangers. If you are not sure about something, ask your manager or the system supplier or manufacturer.

The relevant regulations and the other generally recognised rules must be observed.

Never work in a way that prejudices the safety of the system.

In principle, no safety devices should be removed, taken out of service or adjusted without knowledge of the common regulations and standards and a qualified person in attendance. The safety devices protect against serious physical damage (burns, electric shock, etc.).

If damage to the system or defects is recognised, particularly those affecting the safety devices, expansion tanks, etc. and if unusual noises or smells develop, switch the system off and inform your supplier.

In principle any service and cleaning work on the storage vessel must only be done when it is stationary.

The vessel must be protected against unauthorised operation.

Manual AQUATANK 316Ti/L / 316Ti/L HC

Installation and maintenance instructions

Contact with hot parts of the cylinder can cause serious burns. Avoid any contact with hot parts of the vessel.

Installer will have to adapt safety system to local rules and evolution of these rules:

In France diameter of safety valve must correspond to diameter of cold water inlet pipe: 2".

Eventual example of design rules of safety valves in Germany concerning sizes of pressure relief valves:

nominal capacity of vessel in litre	max. heating load in kW	min. diameter
up to 200	75	DN 15
above 200 to 1000	150	DN 20
above 1000 to 4000	250	DN 25



Warning against your own conversions and changes: For safety reasons, you must not convert or modify the vessel yourself. The guarantee covering the vessel will inevitably lapse if you do.

1.6 Water quality

1.6.1 Water hardness

By nature, drinking water contains alkaline earths and calcium and magnesium components that are the main cause of "water hardness". The temporary component of water hardness, carbonate hardness, is the part that is precipitated as boiler scale when the water is heated and is deposited on the surfaces of that water storage systems, increasing with increasing temperature and according to the "lime-carbon dioxide balance" of the water.

Water with high lime content (total hardness of 2.5-3.8 mmol/l and exceeding) built up very quickly scales on the immersion heater. This causes capacity losses and breakdowns of the immersion heater.

If necessary, consult the water utility and consider experience with lime scale deposits in the catchment area concerned.

1.6.2 Free chlorine

Naturally water from the mains contains free chlorine Cl^- . Free Cl^- can cause pit corrosion if it is accumulated under scaling and fouling. Periodically inspections of the inner vessel and if necessary cleanings must be carried out.

The content of free chlorine in water at 60°C should not exceed 120mg/l.

1.7 Warranty

If no trade term is specifically agreed the warranty shall be according to the ORGALIME S 2012 (General conditions for the supply of mechanical, electrical and electronic products, Brussels, March 2012).

2 Installation

Please safeguard the storage tank during unloading and transportation against tilting. Do not use inappropriate transport equipment and avoid damages by crushes and whams.

The vessel is very heavy and has a high centre of gravity. Please transport it carefully and only use suitable equipment, e.g. forklift, crane, lifting truck.

NB: please check the AquaTank delivered for completeness and possible damage in transit before transferring it to the place where it is to be installed.

2.1 Siting

Avoid siting in damp locations and places below zero °C.

Because of the risk of corrosion avoid the contact of non-alloy steel with the stainless vessel (e.g. supports, pipe work and tools etc. made of mild steel).

While working close to the stainless-steel vessel and the insulation do not expose it to flying or grinding sparks.

In order to prevent leakage currents, grounding or equipotential bonding is required at the storage tank.

Important: Any work to which a requirement of the common regulations and standards applies must be carried out with suitable materials and in a workmanlike manner.

The AquaTank may only be installed and commissioned by a person holding a certificate for the installation of unvented hot water storage systems. This person is then responsible for the correct installation, connection and the equipment.

2.1.1 Space required

Install the AquaTank in a room that is protected from frost, flooding and is adequately ventilated. The maximum admissible temperature in the room where the system is installed must not exceed 40°C. Make sure that there is an adequate space between the AquaTank and the wall and other components to allow maintenance and inspection (minimum 60 cm).

2.1.2 Substrate/foundation/load-bearing capacity

The load-bearing capacity of the substrate must be adequate for the weight of the system (see delivery documents).

Alignment

Set up the system on the site and align horizontally. If the substrate is soft, place suitable shims under the foot ring/frame feet so that the system does not sink in.

2.2 Connection

The pipes for connecting the AquaTank must be designed so that they will safely withstand the expected chemical, mechanical, pressure and temperature stresses. The pipes connected to the AquaTank must not transfer any reaction forces and vibrations into the vessel.

2.2.1 Electrical connection

The installation of the immersion heater needs to comply with the common regulations and standards for electrical equipment as well as with the regulations of the public electricity supplier. The installation must be carried out by a person holding a certificate for electrical installations. This person is then responsible for the correct installation and connection of the immersion heater.

3 Commissioning & Operation

- When charging the vessel with the water for the first time, make sure that all screw connections are properly tightened, tighten any loose connections with a suitable tool and make sure that all seals are firmly seated and leak-tight, particularly the flange seal on the tank.
- We recommend the use of strainers/filters if the cold water from the mains or the re-circulated hot water from the circulation pipework contains particles that cause corrosion on stainless steel.
- Do not operate the equipment at pressures or temperatures in excess of those specified on the nameplate of the vessel marking and drawings.
- Do not subject the equipment to conditions of vacuum or partial vacuum.
- Open the mains stop cock and fill the unit with water.
- Open successive the air vent on top to purge the unit of air.
- Open the primary heating circuit successive and adjust the primary control valve on the setpoint and heat the water to its temperature of use.
- Check all gaskets/sealings at the water connections and the inspection opening for leaks when the vessel has reached its working temperature and rectify as necessary. Some bolt tightening maybe necessary after the unit has been first pressurised.
- The periodical change of cold and hot temperatures causes a load alteration on all gaskets and sealings and degrades its elasticity during the period of operation. This can cause leaks after a certain period.

Call the attention of the user/operator regarding this circumstance. Give the necessary instructions for periodical checks of all water connections and issue instructions how to refit the leak tightness.

3.1 Maintenance

The AquaTank must be inspected by a competent person in time intervals not exceeding 1 year. Annual maintenance should include cleaning and debris from the base of the vessel to comply with guidelines on prevention of legionella bacteria proliferation.

The leak-tightness of all screw and flange connection seals must be checked at regular intervals. Because of constantly fluctuating temperature loads, i.e. topping up with cold water when water is extracted and re-charging to tank temperature, the elasticity of the seal materials used suffers during the life of the system. The tension of the screw connections can decline at the same time, resulting in leaks.

Open the air vent and pipe the drain to a drain point and open the drain valve.

The cylinders internal condition can be inspected by removing the inspection cover to allow visual examination. Re-fit the gaskets/sealings and re-fill the vessel according to the commissioning instructions above.

4 Design data

4.1 Ratings

Design pressure, max. 10 bar(g)

Design temperature, max. 95°C

AquaTank 316Ti/L is in article 4.3 according to PED 2014/68/EU.

AquaTank 316Ti/L HC could be not in article 4.3 according to PED 2014/68/EU if used with water above 110°C inside coils. Please check so available detailed drawing to get exact PED classification

The DECLARATION of SUPPLIER is directly attached to the delivered vessel.

Energy efficiency class according to European Union rule N°814/2013 and N°812/2013.

4.2 Material

AquaTank 316Ti/L

The vessel and connections are made of AISI 316Ti/L according to DIN material number 1.4571 and 1.4404 / BS 320 S 21 / AFNOR Z 6 CNDT 17.12 / SS 2350

4.3 Insulation characteristics

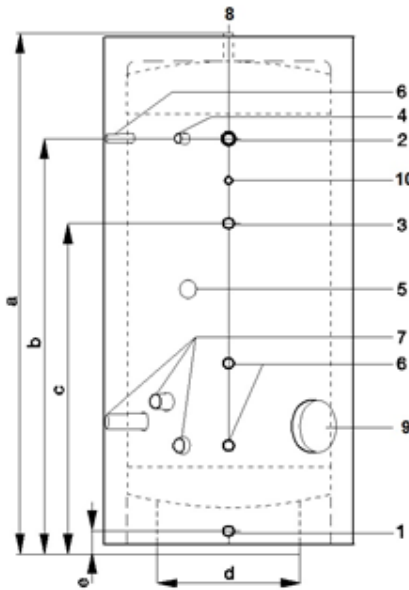
Eurofire class D S1, do/EN 13501-1 (or B2/DIN 4102)

150 to 1000L: Neodul 80/20 (100mm) covered with polystyrene cladding

1500 to 4000L: Neodul 100/20 (120mm) covered with polystyrene cladding

5 Dimensions and technical data

5.1 AQUATANK 316 Ti/L



AquaTank 316Ti/L

Storage water heater, 300 - 4000 litres

Part numbers	True Storage Volume (litres)	Heat Losses (kWh in 24 h)	Heat Losses (W)	Dry weight with insulation (kg)	Net weight (kg) without insulation	Immersion Heater Rating (kW) possibilities	Energy Efficiency Class
AQT030SB4U	273	1,58	66	68	50	1 x 3	B
AQT052SB4U	490	2,36	98	91	65	2 x 9	C
AQT075SB4	756	2,89	120	146	115	2 x 12	C
AQT075SB4U	756	2,89	120	146	115	2 x 12	C
AQT100SB5U	990	3,36	140	200	155	3 x 12	C
AQT150SC5U	1415	3,89	162	299	225	3 x 12	C
AQT200SC5U	1975	4,31	180	348	285	3 x 12	C
AQT250SC5	2450	-	-	475	400	Ø	*
AQT300SC5	3095	-	-	555	470	Ø	*
AQT400SC5	4080	-	-	665	570	Ø	*

* Not taken account in accordance with ErP Directive

AquaTank 316Ti/L

Storage water heater, 300 - 4000 litres

Part numbers	True Storage Volume (litres)	Diameter of visit trap	Dimensions (mm)							Connection sizes (inches)			
			a	b	c	d	D1	D2	e	1	2	3	4
AQT030SB4U	273	120/180	1560	1217	908	400	550	750	97	Rp 2"	Rp 2"	Rp 1"	Rp 2"
AQT052SB4U	490	120/180	1815	1507	1158	450	650	850	97	Rp 2"	Rp 2"	Rp 1"	Rp 2"
AQT075SB4U	756	120/180	2105	1730	1360	600	750	950	97	Rp 2"	Rp 2"	Rp 1"	Rp 2"
AQT100SC5	990	400/480	2180	1763	1402	650	850	1050	97	Rp 2"	Rp 2"	Rp 1"	Rp 2"
AQT100SB5U	990	120/180	2180	1763	1402	650	850	1050	97	Rp 2"	Rp 2"	Rp 1"	Rp 2"
AQT150SC5U	1415	400/480	2245	1750	1350	800	1000	1240	80	Rp 2"	Rp 2"	Rp 1"	Rp 2"
AQT200SC5U	1975	400/480	2545	2545	1725	800	1100	1340	80	Rp 2"	Rp 2"	Rp 1"	Rp 2"
AQT250SC5	2450	400/480	2410	2410	1650	1000	1300	1540	100	DN50	DN50	Rp 1"1/4	DN50
AQT300SC5	3095	400/480	2910	2910	1930	1000	1300	1540	100	DN50	DN50	Rp 1"1/4	DN50
AQT400SC5	4080	400/480	3660	3660	2050	1000	1300	1540	100	DN65	DN65	Rp 1"1/4	DN65

Insulation type: Neodul 80/20 (100 mm) from 150 to 1000 litres and Neodul 100/20 (120 mm) from 1500 to 4000litres

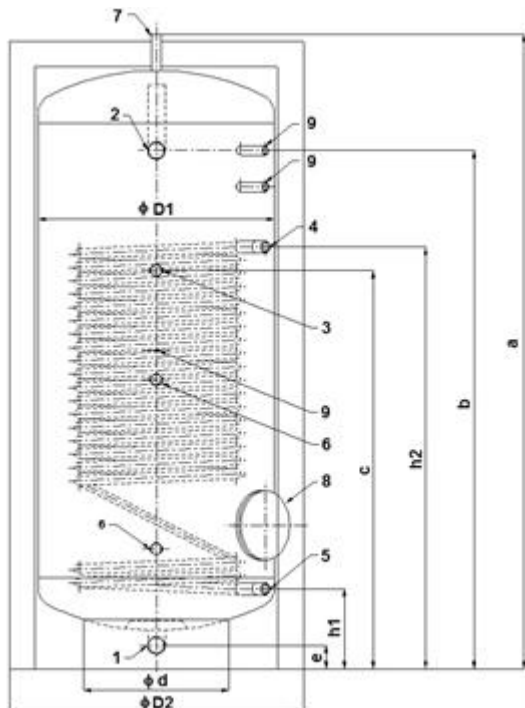
Eurofire class D S1, do/EN 13501-1 (or B2 / DIN4102)

Energy efficiency class according to European Union rule No. 814/2013 and No. 812/2013

Manual AQUATANK 316Ti/L / 316Ti/L HC

Installation and maintenance instructions

5.2 AQUATANK 316 Ti/L HC



AquaTank HC 316Ti/L

Storage water heater, 125 - 1000 litres

Part numbers	True Storage Volume (litres)	Heat Losses (kWh in 24 h)	Heat Losses (W)	Dry weight delivery (kg)	Net weight (kg) without insulation	Energy Efficiency Class
AQTHC012SA4	128	1,19	50	57	40	B
AQTHC016SA4	172	1,21	50	68	50	B
AQTHC020SA4	212	1,4	58	87	58	B
AQTHC035SB4	345	1,84	77	110	85	C
AQTHC050SB4	490	2,36	98	132	95	C
AQTHC075SB4	739	2,89	120	191	145	C
AQTHC100SB5	990	3,36	140	243	195	C

AquaTank HC 316Ti/L

Storage water heater, 125 - 1000 litres

Part numbers	True Storage Volume (litres)	Diameter of visit trap	Dimensions (mm)									Connection sizes (inches)			
			a	b	c	h1	h2	d	D1	D2	e	1	2	3	4 & 5
AQTHC012SA4	128	Rp2"	995	995	640	190	560	400	500	700	65	Rp 1"	Rp 1"	Rp 3/4"	R 1"
AQTHC016SA4	172	Rp2"	1245	1245	870	190	740	400	500	700	65	Rp 1"	Rp 1"	Rp 3/4"	R 1"
AQTHC020SA4	212	Rp2"	1495	1495	940	190	740	400	500	700	65	Rp 1"	Rp 1"	Rp 3/4"	R 1"
AQTHC035SB4	345	120/180	1725	1425	1095	220	1280	400	550	750	65	Rp 1"1/4	Rp 1"1/4	Rp 3/4"	R 1"
AQTHC050SB4	490	120/180	1745	1425	1095	220	1160	400	650	850	65	Rp 1"1/4	Rp 1"1/4	Rp 3/4"	R 1"
AQTHC075SB4	739	120/180	1830	1470	1090	275	1155	600	800	1000	80	Rp 2"	Rp 2"	Rp 1"	R 1"
AQTHC100SB5	990	120/180	2080	1705	1440	265	1080	700	850	1050	80	Rp 2"	Rp 2"	Rp 1"	R 1"

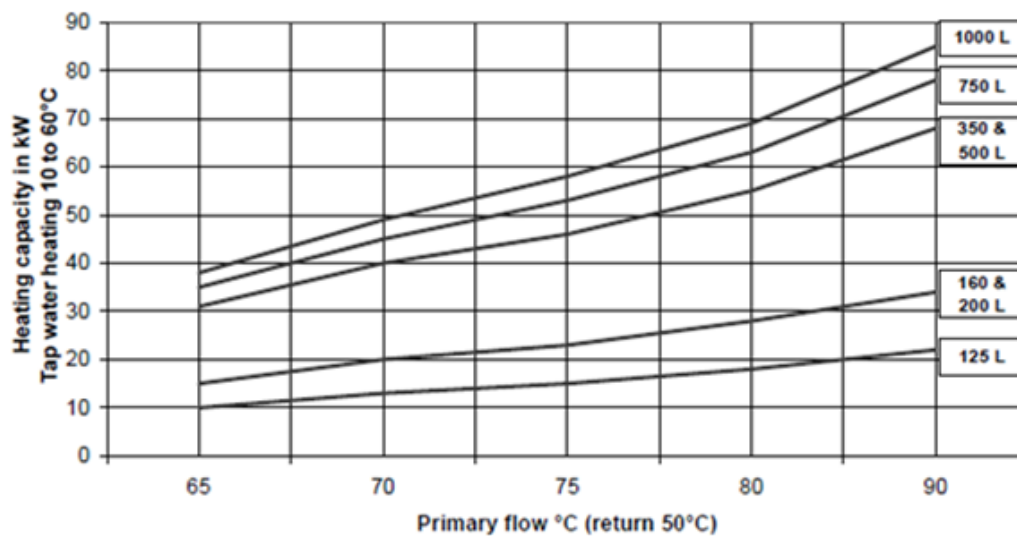
Insulation type: Neodul 80/20 (100 mm)

Eurofire class D S1, do/EN 13501-1 (or B2 / DIN4102)

Energy efficiency class according to European Union rule No. 814/2013 and No. 812/2013.

6 Tap water heating capacity

Tap water heating capacity AQT 316Ti/L HC



6.1 Characteristics

Primary flow and pressure drop

Vessel capacity	Heating coil		1) Primary flow		1) Pressure drop coil	2) Primary flow		2) Pressure drop coil
	Surface	Capacity						
L	m ²	Litres	l/h	m/s	kPa	l/h	m/s	kPa
128	0.9	4.6	573	0.42	2	473	0.35	1.5
172/212	1.4	6.8	860	0.63	6	731	0.53	4.5
345	2.8	13.5	1777	1.3	40	1462	1.07	28.5
490	2.8	13.5			35			25
739	3.2	22	2007	0.76	9	1677	0.64	6.5
990	3.5	24.5	2179	0.83	11	1828	0.69	8

1) highest primary flow at 65/50 °C

2) lowest primary flow at 90/50 °C

Tap water capacities (60°C storage temperature)

Vessel capacity	3) Capacities at 40°C draw temperature		
	10 min.	60 min.	constant output
L	Litres	Litres	l/h
128	280	638	430
172	377	926	659
212	443	993	659
345	803	1902	1318
490	1053	2152	1318
739	1503	2769	1519
990	1944	3329	1662

3) Primary at 75/50°C

7 Warranty

Our equipment comes with a 24-month warranty from the date of shipment.

The manufacturer's liability is limited to the replacement of any defective part that cannot be repaired. No other financial compensation may be claimed in any case under the warranty.

The nature and probable cause of the defect must be reported to the manufacturer before any action is taken. The defective part should then be returned to our factory in France for assessment unless written agreement to proceed otherwise has been obtained from Cetetherm. The results of the assessment can only state whether the terms of the warranty apply.

7.1 Exclusion factors:

Non-compliance with the guidelines for installation, configuration and maintenance:

Over pressures, water-hammer, scaling, noncompliant water quality

Also excluded from the warranty:

- Fitting costs, refitting costs, packaging, transport, and any accessories or equipment not manufactured by Cetetherm, which will only be covered by any warranties issued by said third-party manufacturers.
- Any damage caused by connection errors, insufficient protection, misapplication or faulty or careless operations.
- Equipment disassembled or repaired by any other party than Cetetherm.

Non-payment will lead to all operational warranties covering the delivered equipment being terminated.

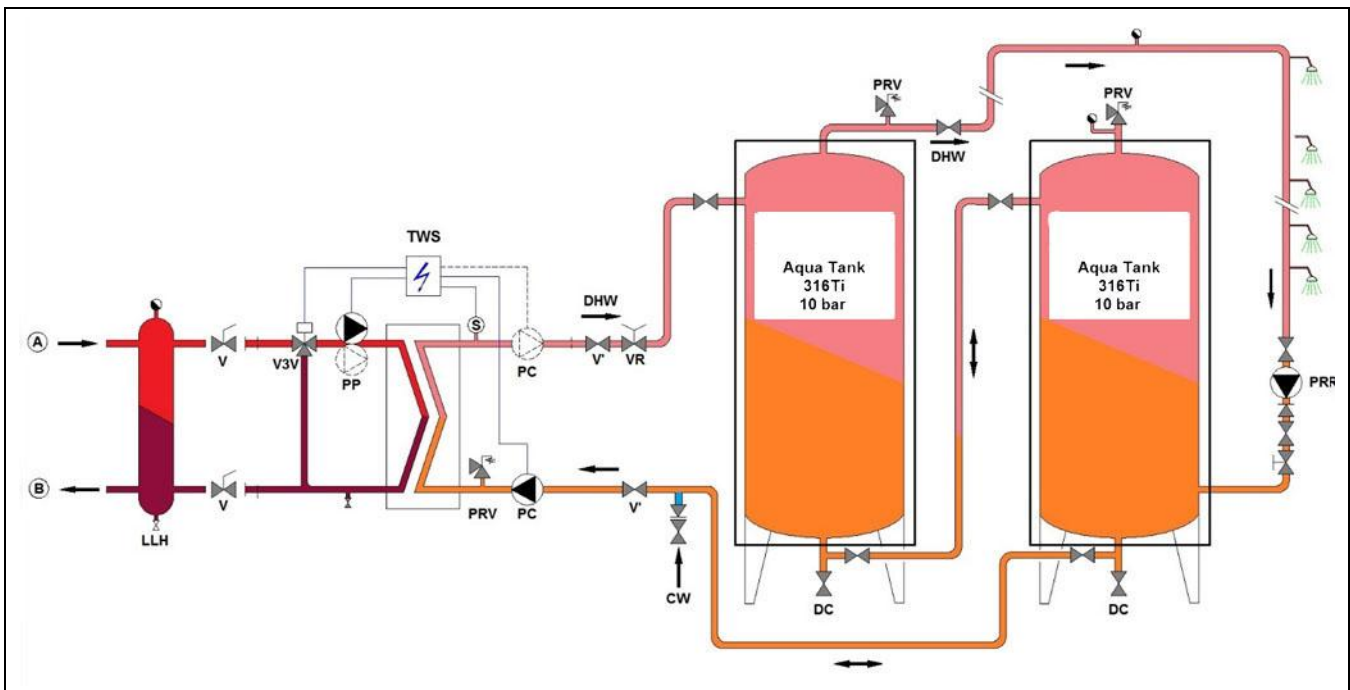
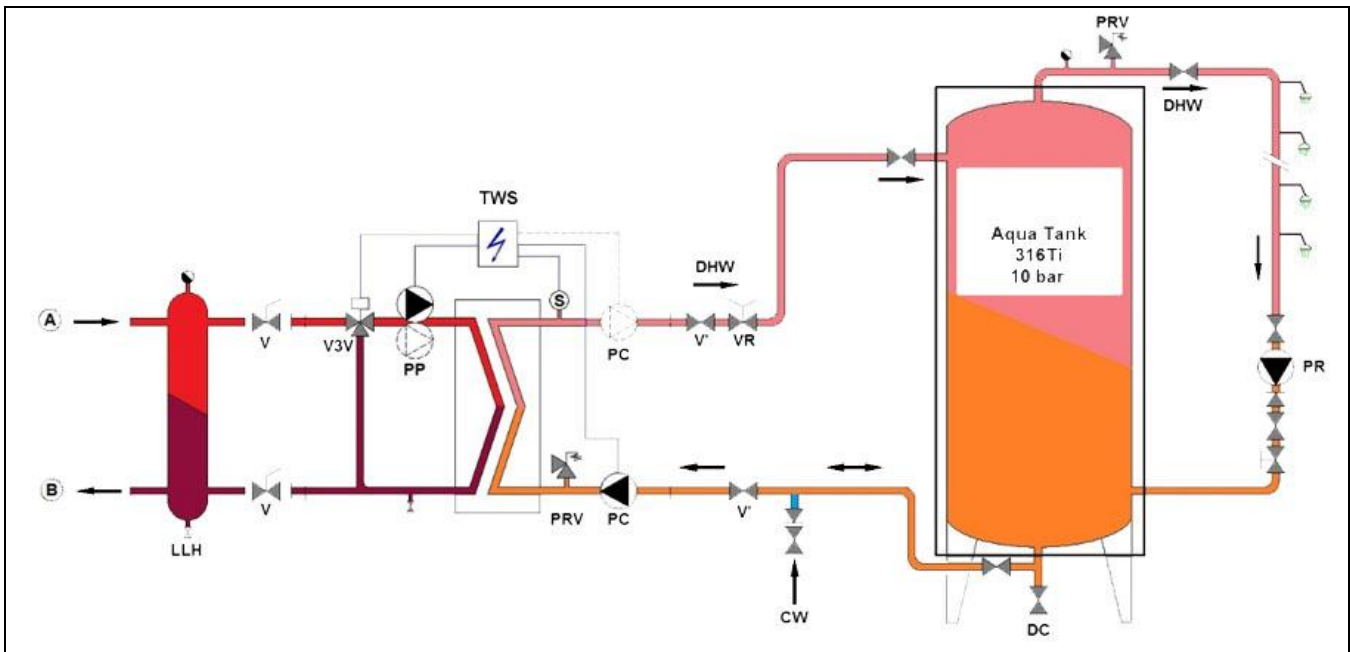
7.2 Spare parts

Only replace any defective part with the original spare part. Please contact your local Cetetherm agency.

7.3 How to contact Cetetherm

Our contact details are updated on our website www.cetetherm.com

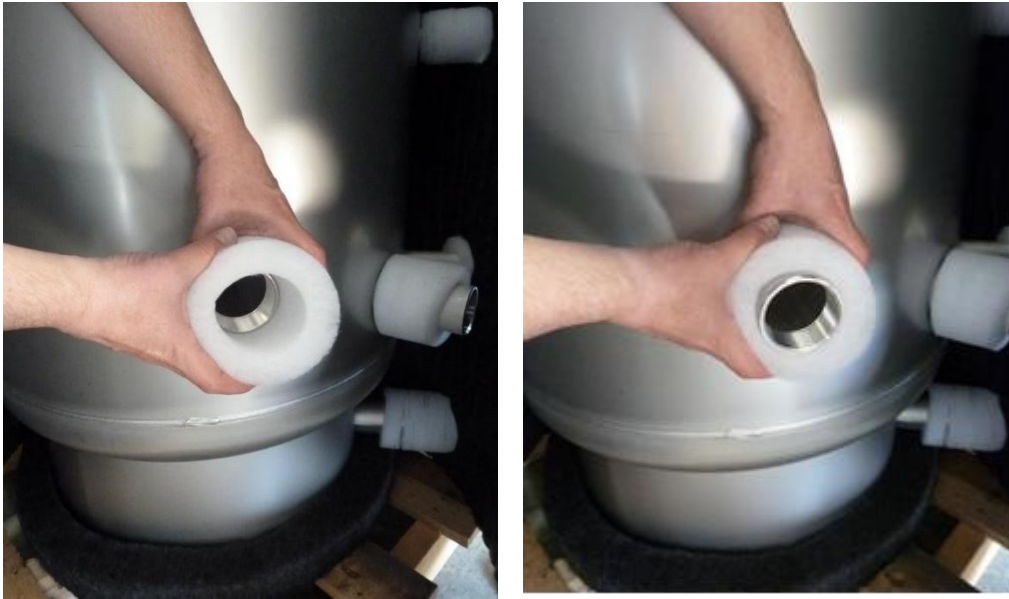
8 Connection of 1 or 2 tanks to a Tap Water System



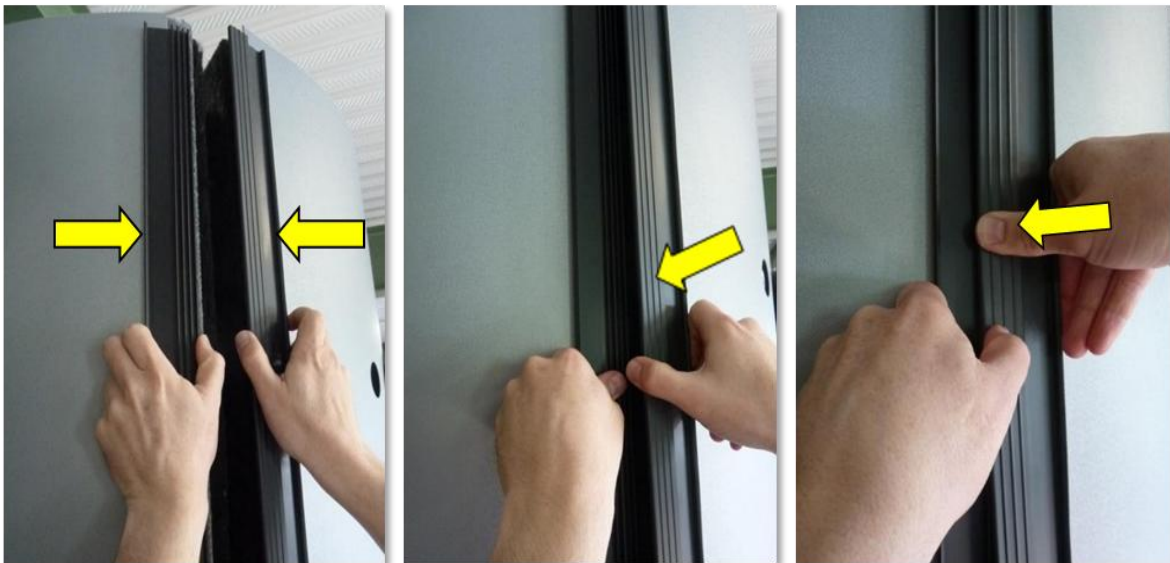
REP	DESIGNATION	REP	DESIGNATION
A	Primary inlet	HE	Heat Exchanger (PHE)
B	Primary Outlet	PP	Primary pump (single/double)
VR	Setting valve	PC	Charging Pump (1 or 2)
CW	Cold water inlet	PR	Recycling pump (on installation)
V3V	Mixing 3 port control valve with actuator	V	Manual gate valve
PRV	Pressure relief valve	S1	DHW temperature sensor (master)

9 Neodul-Installation

1. Put fleece plugs into drilled holes.



2. Connect insulation segments together and close hooking closure step by step



3. Push in left part of hooking closure → Right part slips over left part of hooking closure.



4. Insert top insulation after mounting insulation segments.



Manual AQUATANK 316Ti/L / 316Ti/L HC

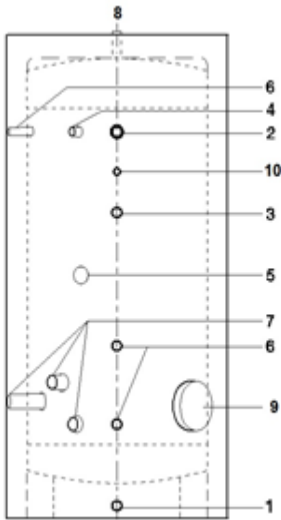
Installation and maintenance instructions

5. Insert inspection hole protection



10 Connections

10.1 AQT316Ti/L



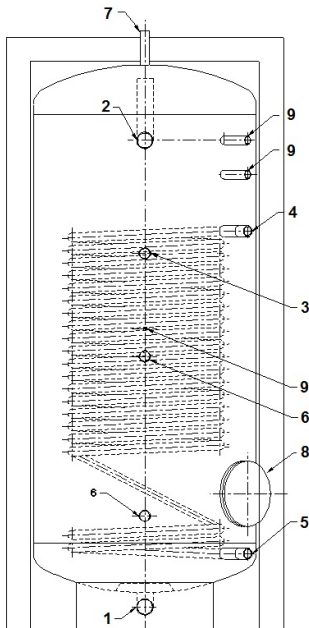
316 Rep	Connections (see table for sizes)	Anschlüsse (Größe siehe Tabelle)	Raccords (voir tableau pour les dimensions)
1	Cold water inlet	Kaltwasserzulauf	Entrée d'eau froide
2	Hot water outlet	Warmwasserablauf	Sortie d'eau chaude
3	Hot water circulation	Warmwasserzirkulation	Circulation eau chaude
4	Charge heat exchanger	Ladewärmeübertrager	Entrée eau chaude
5	Support sleeve, 2"	Stützmanschette, 2"	Manchon de support, 2"
6	Instrument connection, 3/4"	Instrumentenanschluss, 3/4"	Raccord d'instrument, 3/4"
7	Immersion heater, 2"	Heizstab, 2"	Réchauffeur immergé, 2"
8	Air vent, 1"	Entlüftung, 1"	Purgeur d'air, 1"
9	Inspection opening, 120 mm	Revisionsöffnung, 120 mm Durchmesser	Trappe de visite, 120 mm de diamètre.
10	Instrument connection, 1/2"	Instrumentenanschluss, 1/2"	Raccord d'instrument, 1/2"

Note : All drawings are available on Anytime, our Ebusiness for channel partners

Hinweis: Alle Zeichnungen sind auf Anytime, unserem eBusiness für Vertriebspartner, erhältlich

Remarque : Tous les schémas sont consultables sur Anytime, notre portail eBusiness destiné aux partenaires commerciaux

10.2 AQT316Ti/L HC



316 HC Rep	Connections (see table for sizes)	Anschlüsse (Größe siehe Tabelle)	Raccords (voir tableau pour les dimensions)
1	Cold water inlet	Kaltwasserzulauf	Entrée d'eau froide
2	Hot water outlet	Warmwasserablauf	Sortie d'eau chaude
3	Hot water circulation	Warmwasserzirkulation	Circulation eau chaude
4	Primary flow, male thread	Primary flow, male thread	Primary flow, male thread
5	Primary return, male thread	Primary return, male thread	Primary return, male thread
6	Instrument connection, 3/4"	Instrumentenanschluss, 3/4"	Raccord d'instrument, 3/4"
7	Air vent, 1/2"	Entlüftung, 1"	Purgeur d'air, 1"
8	Inspection opening,	Revisionsöffnung, 120 mm Durchmesser	Trappe de visite, 120 mm de diamètre.
9	Instrument connection, 1/2"	Instrumentenanschluss, 1/2"	Raccord d'instrument, 1/2"

