TECHNICAL DOCUMENTATION
INSTALLATION INSTRUCTIONS

THE ENERGYFAMILY

AQA 300/AQA 500
AQA 750/AQA 1000

812520_Rev.13.2 - Translation of original instruction

Hot water buffer for domestic hot water preparation

www.idm-energie.at

Important information on installing and operating the heat pump. It is essential that this information is observed!

1.1. General information

Please read this documentation carefully. It contains important information for correct installation and safe and economical operation of the system.

1.2. Standards and directives

When installing the buffer, observe all applicable national and international regulations and safety instructions as well as the information in these installation instructions.

These include:
- the generally applicable accident prevention and safety regulations
- the regulations on environmental protection
- the regulations of the professional associations
- the applicable laws, standards, guidelines and regulations, e.g. DIN, EN, DVGW, VDI and VDE
- regulations of the local utility company

1.3. Safety instructions

Installation and maintenance work can be affected by high system pressure, high temperatures and live parts and may be dangerous and must only be operated by experts.

Hot water buffer may only be installed by competent experts and commissioned by a customer service company trained for this purpose by iDM-Energysystems GmbH.

When working on the hot water buffer, the system must be deactivated and secured against reactivation.

In addition, all safety instructions in the relevant documentation, stickers on the hot water buffer itself and all other applicable safety regulations must be observed.

1.4. Storage

The intermediate storage or storage of the buffer must always be carried out in dry conditions!

1.5. Transport

For the transport, deployment and installation use lifting tools, which conforms to the weight and dimension of the hot water buffer. Due to the high deadweight of the buffer there is a high risk of accidents.

1.6. Installation room

- no heavy dust formation
- no persistent air humidity
- frost-proof
- Ensure, that the statics of the relevant installation room or break-throughs in ceilings and walls is not endangered by the installation and is suitable for it.

1.7. Installing of additional components

The installation of additional components which have not been tested with the device may impair the function. No warranty or liability is assumed for any resulting damage.

1.8. Cleaning

If necessary, the hot water buffer can be cleaned with a damp cloth. The use of solvent-based cleaning agents is not recommended.

1.9. Servicing and maintenance

Regular maintenance as well as checking and servicing all system components guarantee a safe and economical operation in the long term. To achieve this, we recommend a maintenance contract with the relevant customer service company.

Only original iDM spare parts or spare parts which correspond to iDM-specifications are allowed!

1.10. Costumer service

For technical information, please contact your installer or your local iDM Energiesysteme service partner.

1.11. Disposal

Hot water buffer are electrical appliances made of high-quality materials that must not be disposed of as normal household waste, but must be disposed of properly and professionally in accordance with the regulations of the local authorities.

Incorrect disposal can cause damage to the environment and health, apart from the penalties for the violator.

Risk of scalding
The hot water temperature in the buffer may cause scalding.

General notes for the operation of the hot water buffer.

General notes on installation the hot water buffer.

Important notes on installation and operation of the hot water buffer.
It is essential to comply with these!

Space for customer service telephone number
_____

2.1. Description

The hot water buffer is made of high quality steel with a special enameling of the inner surface.

An additional magnesium rod anode prevents corrosion. The buffers are equipped with a thermometer, anode and 75 mm PU-rigid foam (AQA 300 and AQA 500) or 100 mm fleece insulation (AQA 750 and AQA 1000).

The insulation ensures that the buffers only emits very little heat.

The AQA 300 can be used with a heat pump up to 15 kW, the AQA 500 up to 20 kW, the AQA 750 up to 22 kW and the AQA 1000 up to 26 kW heating capacity.

If an electrical heating element is installed in the heating buffer, an additional safety device must be installed at the heating buffer!

2.2. Scope of delivery

- buffer body with internal smooth tube heat exchanger, enameled
- magnesium rod anode
- insulation made of PU rigid foam (AQA 300, AQA 500)
- insulation made of fleece (AQA 750, AQA1000)
- PS foil cover
- cover PS plastic hood
- thermometer
- adjustable feet for buffer adjustment

2.3. Dimensioning note

The hot water buffer is available in four different sizes.

„Buffer capacity"

capacity	intended purpose
AQA 300	for single family houses
AQA 500	for single and two family houses
AQA 750	for single and two family houses
AQA 1000	for two- and multi-family houses

„One time tapping capacity"

This is the total quantity of hot water with 45 °C which can be tapped from the hot water buffer, if the buffer is heated up to 55 °C from top to bottom and is not reheated from the heater.

„Hot water requirements"

The hot water requirements for a building must be ascertained in accordance with DIN 4708, part 2 or in accordance with the "sander procedure".

3. Technical data

3.1. Technical data

tech. data \ type		AQA 300	AQA 500	AQA 750	AQA 1000
max. heat output of the heat pump	kW	15	20	22	26
storage capacity	l	295	467	728	961
usable storage capacity	l	270	425	681	898
register heating surface	m²	3,5	5,9	7	9,2
capacity tube register	l	25	42	49	64
max. hot water temperature	°C	55	55	55	55
one-time tap volume at 45°C tap temperature and 55°C boiler temp.	l	348	566	894	1165
max. operating pressure drink water side	bar	10	10	10	10
max. operating pressure heating side	bar	10	10	10	10
max. operating temperature drink water side	°C	90	90	95	95
max. operating temperature heating side	°C	95	95	95	95
height	mm	1835	1975	2050	2085
diameter	mm	650	750	960	1051
insertion measure	mm	650	750	750	1051
topple measure	mm	1883	2044	2107	2162
weight	kg	90	160	266	363
energy efficiency class		B	B	C	C
average power loss	W	58	76	123	142

Multi-stage machines start priority charging with all available compressors. When the flow temperature has exceeded the „max. flow temperature for priority charging" - 13K, all compressors except one are switched off.

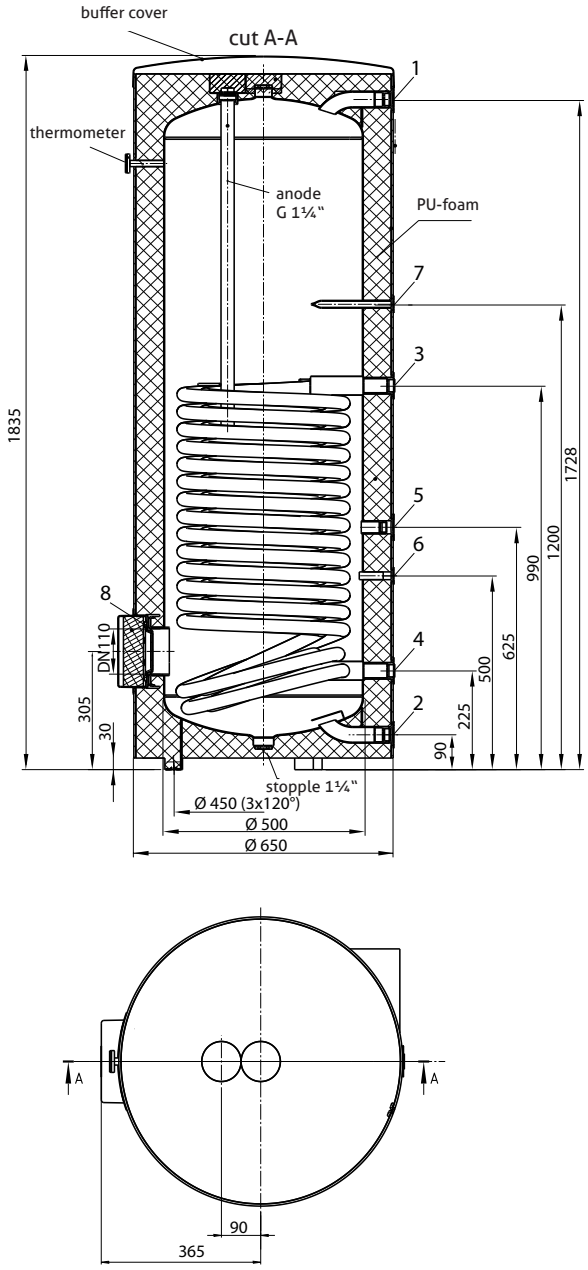
The managementt of an AQA buffer with two or more heat pumps is not permitted!
Attention in single-stage operation, the heat pump only runs with the half power! This can lead to longer charging times for the AQA!

3.2. Possible combinations AQA

heat pump type	stage	AQA 300	AQA 500	AQA 750	AQA 1000
AERO ILM 4-13		yes	yes	yes	no
AERO SLM 3-11		yes	yes	yes	no
AERO SLM 6-17		no	yes	yes	yes
AERO ALM 2-8		yes	no	no	no
AERO ALM 4-12		yes	yes	yes	no
AERO ALM 6-15		no	yes	yes	yes
AERO ALM 10-24		no	yes	yes	yes
AERO ALM 10-50 Max		no	no	no	yes
TERRA AL 24 Twin	2 stages	no	yes	yes	yes
	1 stage	no	yes	yes	yes
TERRA AL 32 Twin	2 stages	no	no	yes	yes
	1 stage	no	no	yes	yes
TERRA AL 50 Max	2 stages	no	no	no	no
	1 stage	no	no	no	no
TERRA SWM 3-13		yes	yes	yes	yes
TERRA SWM 6-17		no	yes	yes	yes
TERRA SW 6		yes	no	no	no
TERRA SW 8		yes	yes	no	no
TERRA SW 10		yes	yes	yes	no
TERRA SW 13		yes	yes	yes	yes
TERRA SW 17		no	yes	yes	yes
TERRA SW 20 Twin	2 stages	no	yes	yes	yes
	1 stage	no	yes	yes	no
TERRA SW 26 Twin	2 stages	no	yes	yes	yes
	1 stage	no	yes	yes	yes
TERRA SW 35 Twin	2 stages	no	no	no	no
	1 stage	no	yes	yes	yes
TERRA SW 42 Twin	2 stages	no	no	no	no
	1 stage	no	no	yes	yes
TERRA SW 10 H	1 stage	yes	yes	yes	no
TERRA SW 13 Twin H	2 stages	yes	yes	yes	yes
	1 stage	yes	yes	no	no
TERRA SW 19 Twin H	2 stages	no	yes	yes	yes
	1 stage	yes	yes	yes	no
TERRA SW 22 Twin H	2 stages	no	yes	yes	yes
	1 stage	yes	yes	yes	no
Booster 10		yes	yes	yes	no
Booster 20		no	yes	yes	yes

3.3. Dimension drawings AQA

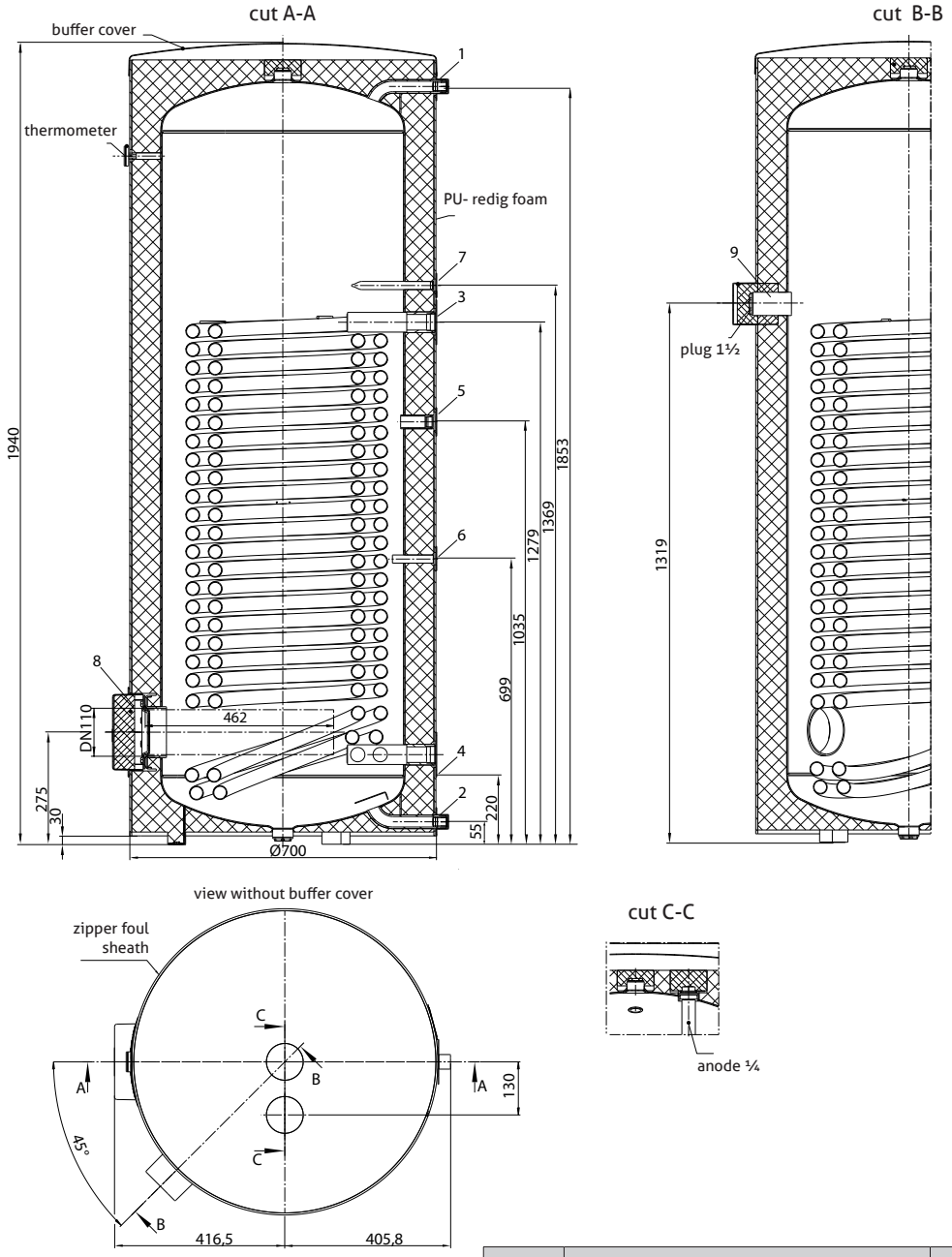
3.3.1. AQA 300



pos.	connection	dimension
1	hot water forward flow	R 1" IG
2	cold water return flow	R 1" IG
3	forward flow heat pump	R 1" IG
4	return flow heat pump	R 1" IG

pos.	connection	dimension
5	connection circulation	R ¾" IG
6	immersion sleeve - temp. sensor	di = 20mm
7	immersion sleeve - temp. sensor	di = 20mm
8	flange connection for electric heating element	DN 110

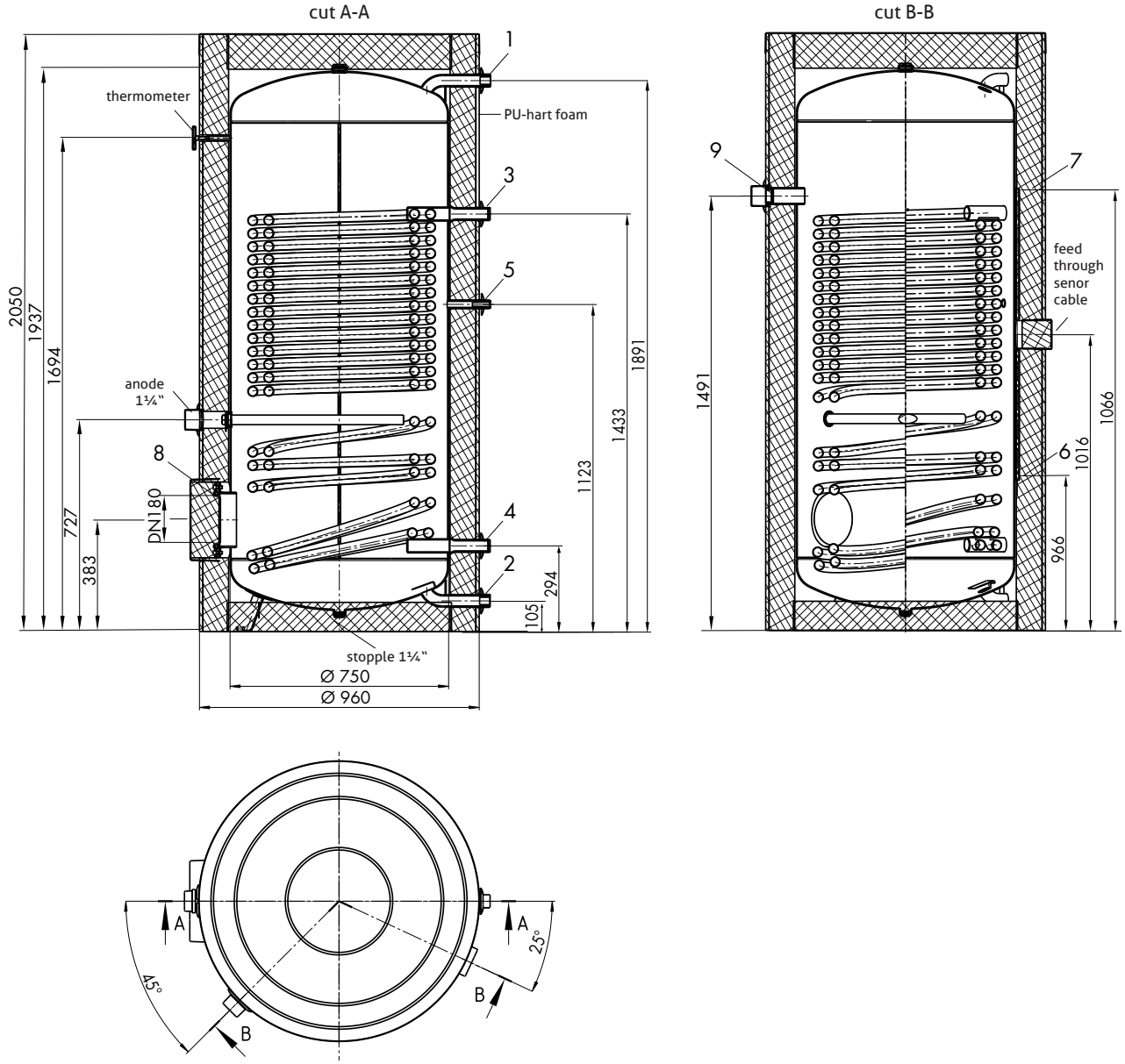
3.3.2. AQA 500



pos.	connection	dimension
1	hot water forward flow	R 1" IG
2	cold water return flow	R 1" IG
3	forward flow heat pump	R 1" IG
4	return flow heat pump	R 1" IG

pos.	connection	dimension
5	connection circulation	R ¾" IG
6	immersion sleeve temp. sensor	di = 20mm
7	immersion sleeve temp. sensor	di = 20mm
8	flange connection for electric heating element	DN 110
9	sleeve	R 1 1/2"

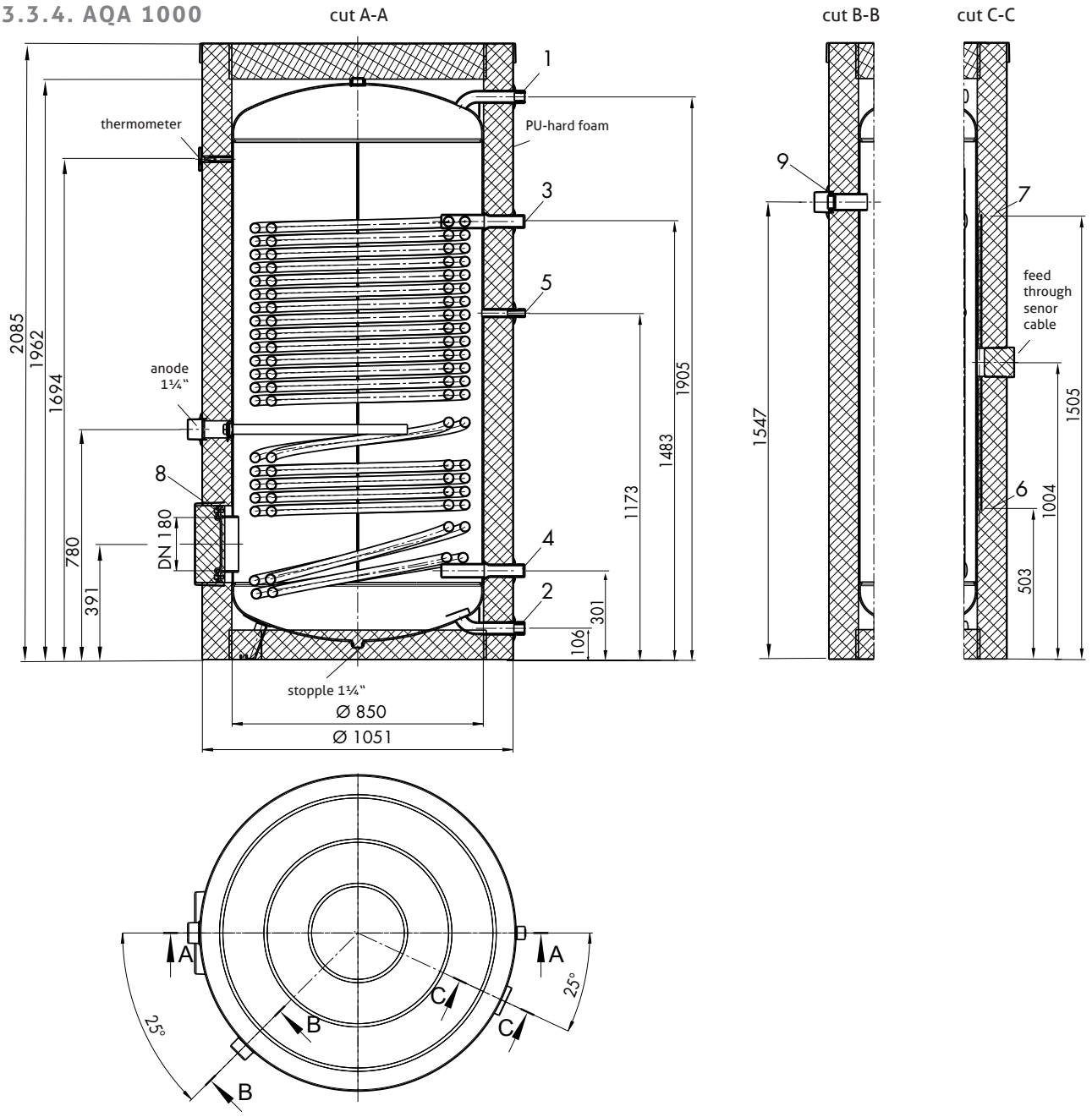
3.3.3. AQA 750



pos.	connection	dimension
1	hot water forward flow	R 1 ¼" IG
2	cold water return flow	R 1 ¼" IG
3	forward flow heat pump	R 1 ¼" IG
4	return flow heat pump	R 1 ¼" IG
5	connection circulation	R ¾" IG

pos.	connection	dimension
6	sensor position for B41	-
7	sensor position for B4	-
8	flange connection for electric heating element	DN 180
9	sleeve	R 1 1/2"

3.3.4. AQA 1000



pos.	connection	dimension
1	hot water forward flow	R 1 ¼" IG
2	cold water return flow	R 1 ¼" IG
3	forward flow heat pump	R 1 ¼" IG
4	return flow heat pump	R 1 ¼" IG

pos.	connection	dimension
5	connection circulation	R ¾" IG
6	sensor position for B41	-
7	sensor position for B48	-
8	flange connection for electric heating element	DN 180
9	sleeve	R 1 1/2"

4. Installation

4.1. Installation conditions

Install the buffers as close as possible to the drinking water tap point, in order to keep the water routes as short as possible and prevent a circulation line.

When storage, transport and installation of the buffer, it must be ensured that no mechanical effects such as deformations, scratches and tensions occur.

4.2. Installation location

The buffers must be installed in a frost protected room by an approved specialist company.

The relevant laws, regulations and standards both for heating house piping and for sanitation installations must be observed.

For easy access to the connections, sufficient free space around the buffer should be ensured.

4.3. Connecting sleeves Hygienik

The dimensions of the connecting sleeves can be found in chapter 3.3.

4.4. Drink water-side connection

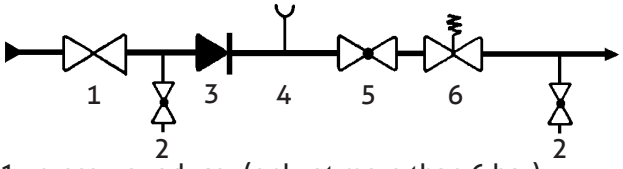
The hydraulic integration is realized according to the indicated schemes (see chapter 5 „system schemes").

The hot water buffer is convenient for drink water (ph-value > 7,3) according to DIN 50930-6. The connection pipe work can be made with galvanised pipes, stainless steel pipes, copper pipes or plastic pipes.

The connections must be realised pressure-tight.

The component-tested safety devices as per DIN 1988 and DIN 4753 must be installed in the cold water line (see figure below).

The operating pressure of 10 bar indicated on the type plate must not be exceeded. If necessary a pressure reducer must be installed.



1...pressure reducer (only at more than 6 bar)
2...emtying valve
3...backflow prevention
4...pressure gauge connecting piece 1/2"
5...shut-off valve
6...diaphragm safety valve

A water filter is installed in the cold water line.
In the case of hard water a water softening device should be installed.

4.5. Hot water circulation

For long hot water pipes or for large systems, a hot water circulation pipe is necessary to keep the hot water warm and hot water is immediately available when tapping. Note, that in multi-family houses with pipe capacity more than 3 liters according to DVGW sheet, no. 551, a hot water circulation pipe is required to protect against legionella.

According to DVGW sheet no. 551, the temperatures of the hot water in the circulation pipe should be periodically increased up to 60°C.

The iDM Navigator control is equipped with a special circulation pump control. With the Navigator control, it is possible to control a circulation pump, if the digital output on the Navigator main board is not used for common error signal.

If no potable water can be tapped, even although the temperature in the Hygienik is sufficient, the following points must be checked:
- system pressure (approx. 2 bar)
- Open upper ventilation valve and check whether air is in the buffer.

4.6. Sensor installing AQA 300 / AQA 500

The sensors of the AQA 300 and AQA 500 must be placed in the immersion sleeve which is provided. The position of the sensors can be taken from the dimension drawings.

4.7. Sensor installing AQA 750 / AQA 1000

Before the sensors can be placed using the terminal strip on the buffer, the insulation must be opened and the cover cap on the insulation must be removed.

The sensor cables should be led from the outside through the insulation to the inside.

Now the sensors can be positioned at the recommended, marked position and fix them with the clamping strip.

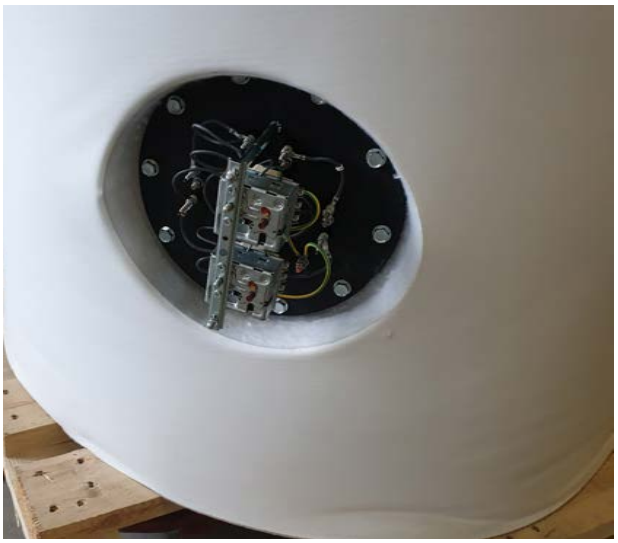
When the sensors are fixed, the insulation is closed again and the cover cap is attached. The cover also serves to provide a firmer hold of the sensor cables.

4.8. Installing electric heating element - integration via the flange connection

The e-heating element is integrated into the AQA via the flange. To do this, first loosen all the flange screws and remove the flange cover.

The new flange cover with the pre-mounted electric heating element can then be screwed onto the buffer. The wiring and connections of the electric heating element can be found in the respective circuit diagram of the heat pump.

We recommend, that you lubricate the supplied flat seal lightly before mounting.



Beginning with the AQA 500, it is possible to integrate an electric heating element into the AQA via a separate sleeve.
This heating element cannot be controlled via the Navigator control. It can be controlled via a thermostat.

4.9. Filling and emtying

Corresponding filling- and emptying valves should be provide for easy filling and emptying.
For frost-proof emptying, the hot water buffer must be emptied at the points provided for this. All non-return valves must be opened for this.

4.10. Water preparation

In order to prevent damage caused by the formation of stones on the plain tube heat exchanger, the water of the heating system must be treated according to VDI guideline 2035, EN 12828 or ÖNORM H5195.

4.11. Magnesium protection anode

The magnesium protection anode should be checked every two years. When replacing, make sure that there are no electrically conductive connections to the buffer!

General
According to DIN 4753-3, the anode, which is located in the AQA, must be subjected to a functional test for the first time after 2 years and then annually. The replacement of the anode is described on the next page.

Inspection of the magnesium protection anode

The integrated magnesium protection anode in the AQA is insulated. The protection current (mA DC) of the anode can be checked in installed condition with the help of an anode tester or multimeter. For this the buffer must be filled with water. The connection line (black) between the anode and the buffer must be disconnected and the measuring instrument must be connected in series between the anode and the buffer (contact closed). After 30 sec. the measurement adjusts.

Interpretation of the measurement results
The measured values are depending on the quality of the enamel, buffer size, water conductivity, water temperature, installation of brass immersion sleeves or non-enamelled components. For AQA, the measured protective currents are in a range of >1 mA. As a critical minimum level, a protection current of <0.3 mA can be considered. Since no corrosion protection is given, the anode must be replaced.

Typical measurements AQA 300l - AQA 1000l
resistance R = 500 kΩ
protection current I = 0.55 mA DC

Note from the buffer manufacturer
Please note that the measured protective current indicates the function or non-functioning of the magnesium protective anode, but there is no guarantee for sufficient protection conditions in the buffer!

Anode test
A guidance how to test the anode can be viewed under the following link:
https://www.youtube.com/watch?v=ZwuTNWZ8e6o

Type of the anode in AQA 300 l and AQA 500 l
Sacrificial anode_ Mg_5/4"_Ø33xL558/528
insulated MAGONTEC.0126033004000500

Type of the anode in AQA 300 l and AQA 500 l
Rod sacrificial anode_Mg_5/4"_Ø33xL430/400
insulated MAGONTEC.0033023005000090

4.12. Replacing the magnesium protective anode AQA 300 and AQA 500

Before the magnesium protection anode can be replaced, the system must be depressurized by emptying of a small portion of water. The anode is placed under the black cover on the top of the buffer.

The foam, which serves as insulation in the area of the protective anode, must be removed.

After this the connection line between the anode and the buffer must be disconnected.

The used anode is removed by a suitable pipe wrench.

The new anode will be installed and bolted tightly. The black connection cable between the anode and the buffer must be connected again.

After the installation of the chain anode the drained water must be refilled. Before restarting the system, the buffer must be checked for leaks in the area of the protection anode.

4.13. Replacing the magnesium protective anode AQA 750 and AQA 1000

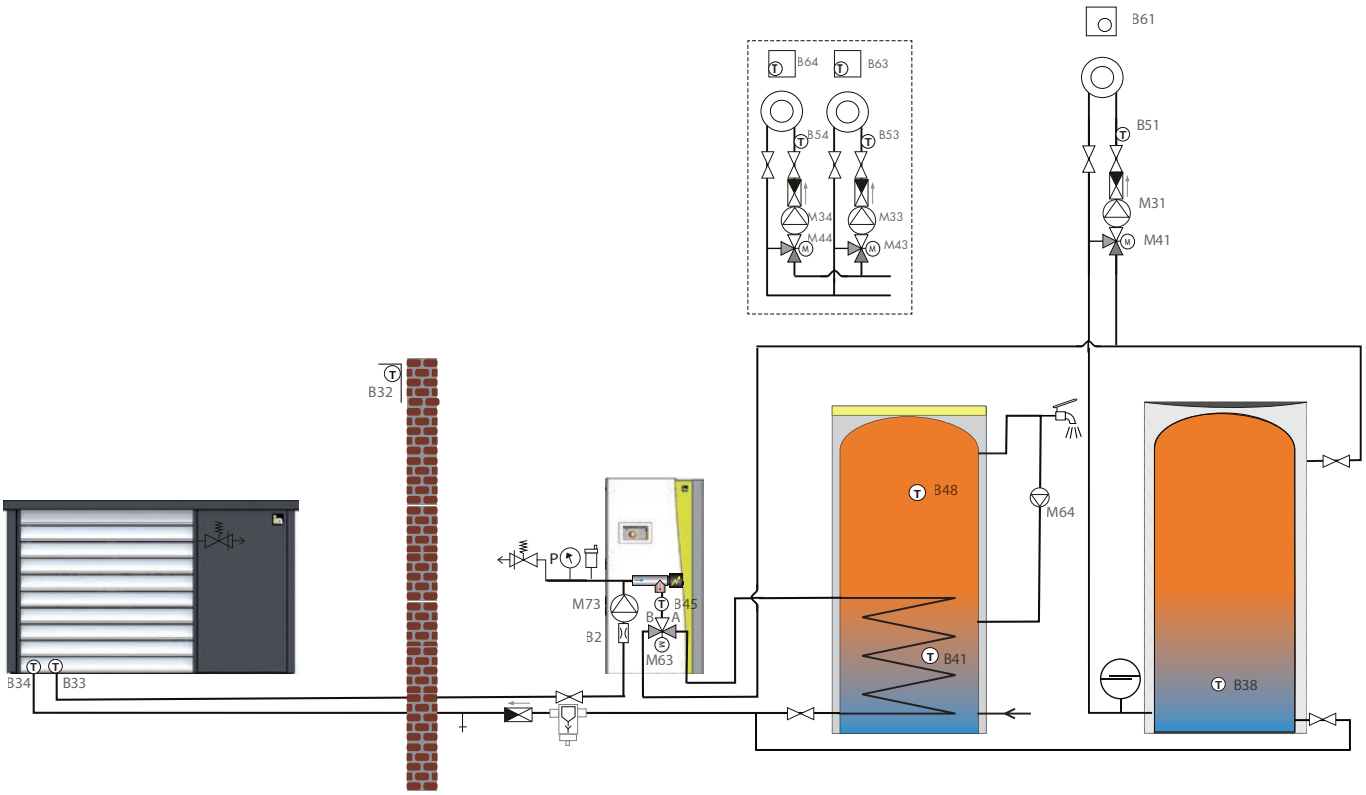
In the AQA 750 and AQA 1000, the anode connection is located directly above the flange connection. The integration of a magnesium chain sacrificial anode is not possible here. It can only be replaced by a magnesium rod anode or a titanium external current anode.

4.14. Replacing the titanium external current anode

The titanium sacrificial anode can be used instead of the magnesium sacrificial anode in the AQA 300, AQA 500, AQA 750 and AQA 100. The titanium external current anode is grounded via the grounding plug on the buffer, in the same way as the magnesium protective anode.

The 90° flat plug sleeve ist connected directly to the anode and the straight flat plug sleeve is connected to the grounding strip on the buffer.

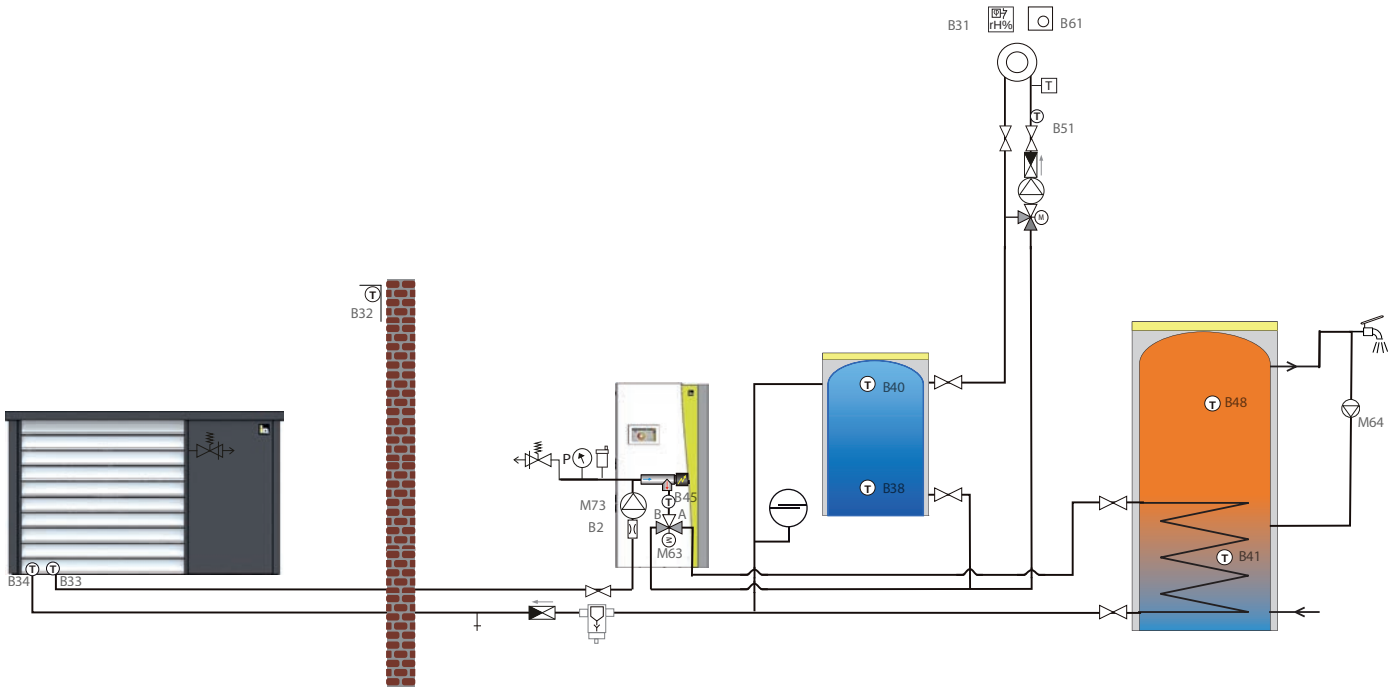
AERO ALM + AQA + TERMO + 1 HC + circulation (L7.1-0-4+5-0-4)



Installation regulations and technical specifications must be observed. See installation and operating instructions.
Check combining possibilities of the heat pump capacity and the AQA.
(see AQA installation instructions)

Note: This is only a tentative suggestion for installing an iDM heat pump in the heating system. This suggestion replaces no professional planning of an executing companie! On part of iDM-Energiesysteme can no warrenty be taken concerning the function of the whole system! General instructions for iDM system schemes must be noted!

AERO ALM 2-15 + cooling + AQA + TERMO100 + 1 HC + circulation (L7.1-0-4+6-2-4)



In cooling mode, one dew point monitor per heating circuit must be placed on the flow pipe in the underfloor heating distributor!
Installation regulations and technical specifications must be observed. See installation and operating instructions.
Check combining possibilities of the heat pump capacityand the AQA.
(see AQA installation instructions)

Note: This is only a tentative suggestion for installing an iDM heat pump in the heating system. This suggestion replaces no professional planning of an executing companie! On part of iDM-Energiesysteme can no warrenty be taken concerning the function of the whole system! General instructions for iDM system schemes must be noted!

CE-declaration of conformity

IDM-Energiesysteme GmbH
Seblas 16-18, 9971 Matrei in Osttirol
Telefon: 0043 4875/6172-0, Fax: 0043 4875/6172-85
E-Mail: team@idm-energie.at, Homepage: www.idm-energie.at
UID-Nr.: ATU 433 604 02

CE Declaration of Conformity (Original copy)

IDM-Energiesysteme GmbH, Seblas 16-18, A-9971 Matrei in Osttirol,

confirms, that device(s) referred to below in the version put into circulation by us satisfies/satisfy the requirements of the EU Directives, EU Safety Standards and product-specific EU Standards.
The basic components of IDM heat-pumps are condenser, evaporator, pipelines, liquid receiver, valves, surge drum and compressors. General technical Data you can find on the nameplate. A change to the device(s) not authorized by us will render this declaration invalid.

EU-Richtlinien

Ecodesign Directive
(2009/125/EU)

EU Energy Consumption Directive
(2010/30/EU)

EU-Regulation:

Regulation (EU) Nr. 812/2013 (for AQA 300 & AQA 500)

Regulation (EU) Nr. 814/2013

Amongst others, the following harmonized standards have been considered analogously

DIN EN 12897:2020-05

DIN EN 4753-3

EN 1297:2016

Concerning following products:

AQA 300
AQA 500
AQA 750
AQA 1000

Documentation officer:
IDM-Energiesysteme GmbH
A-9971 Matrei i.O., Seblas 16-18

Details on the type, year, serial number and other technical data you can find on the name plate.

Matrei i.O., May 25, 2021

Christoph Bacher
Technical managing Director

Seite 1/1

Revision 1.0

ALWAYS THERE FOR YOU:

© iDM ENERGIESYSTEME GMBH
Seblas 16-18 | A-9971 Matrei in Osttirol
www.idm-energie.at | team@idm-energie.at

iDM service technology:

COMMISSIONING - SERVICING - ON-SITE SERVICE
Our service technicians are happy to help on-site. Contact details for your regional customer service centre can be found on our website.

iDM academy:

PRACTICAL KNOWLEDGE FOR SALES AND TECHNOLOGY
The comprehensive range of seminars for specialists at the iDM POWER FAMILY is available to you any time on our website. We look forward to receiving your registration.

YOUR iDM PARTNER:

THE ENERGYFAMILY