



**COSNOGAS**<sup>®</sup>

MADE IN ITALY



commercial condensing D.H.W.

up to  
**11** bar  
WORKING PRESSURE

AISI 316  
**Ti**  
TITANIUM

D.H.W.  
**100%**  
CONDENSING

**AGUAdens T**<sup>TM</sup>  
commercial water heaters from 100 to 280 kW



## CONDENSING HOT WATER

### THE NEW GENERATION OF COMMERCIAL GAS CONDENSING WATER HEATERS

**AGUAdens T** from 100 to 280 kW is the new range of modulating commercial gas condensing water heaters, completely patented and assembled by Cosmogas.

- **INNOVATIVE DESIGN, COMPACT, POWERFUL, LIGHTWEIGHT**  
**AGUAdens T** are designed to be “space-saving”; thanks to their vertical structure they allow to save space in both new and to renovate thermal power plants. They supply water in continuous up to 140 l/min ( $\Delta t$  30°C) with a condensing output up to 294 kW. Thanks to their lightness they are easy to carry and to place inside thermal power plants.
- **“MONOBLOCK” MODULARITY AND CONTINUITY**  
 Each commercial water heater is composed of 1 to 4 R.V.C. 70 kW heat exchangers: a “monoblock” system that optimises the supplied output according to real D.H.W. needs ensuring maximum efficiency. The presence of more heat exchangers always guarantees continuity of service in case of maintenances or breakdowns.
- **AISI 316 Ti (Titanium) STAINLESS STEEL HEAT EXCHANGER**  
 The only primary heat exchanger able to work in direct contact with chlorinated mains water. Each R.V.C. heat exchanger is made without weld joints and it is able to bear a working pressure up to 11 bar.
- **ECOLOGIC PREMIX BURNER**  
 The whole range of commercial water heaters is equipped with ecologic premix burners made of Fecralloy metal fibre.
- **MAXIMUM EFFICIENCY EVEN WITH SMALL FLOWS**  
 2-way motorized valves are available among accessories. They allow high seasonal efficiency in systems characterized by frequent and high output variations.

AGUAdens T™



floor standing  
180 - 210 - 280 kW





## Why choose AGUAdens T:

### Savings and efficiency

- Condensing technology
- Total flame modulation
- Certified efficiency up to 108%
- Suitable water flow to heat exchangers with 2-way motorized valves
- Cascade sequence control and heat exchangers "rotation"

### Comfort

- Silent
- Easy installation and maintenance
- Reduced size and weight

### Construction quality

- Modern, innovative and attractive design
- AISI 316 Ti stainless steel R.V.C. heat exchanger
- Turndown ratio up to 1:20

### Ecology

- Fer alloy fibre premix burner
- Reduced gas emissions in the atmosphere  
CO<15 ppm and NOx<15 ppm



floor standing  
100 - 115 - 140 kW





# A HEART OF TITANIUM

## PATENTED AISI 316 Ti (TITANIUM) STAINLESS STEEL R.V.C. PRIMARY HEAT EXCHANGER

- PATENTED EXCLUSIVE DESIGN** - R.V.C. heat exchanger, heart of **AGUAdens T** system, is the result of research and intensive testing together with Cosmogas experience that, for 50 years, has been designing and patented heating and domestic hot water production systems.
- EXCEPTIONAL RESISTANCE AGAINST CORROSION** - The 3 series of **AISI 316 Ti (TITANIUM)** stainless steel round tubes, which the R.V.C. heat exchanger is made of, are fasten **without weld joints** to keep stainless steel characteristics unaltered and to grant the highest resistance against corrosion from mains water that sometimes contains a high percentage of chlorine, necessary for the purifying treatment.
- HIGH EFFICIENCY** - R.V.C. has been designed to reach an optimal exchange along the entire length of the exchanger and to grant an exceptional **efficiency up to 108%** with savings up to 30%.



### R.V.C. - TECHNOLOGY MADE IN COSMOGAS

The R.V.C. heat exchanger is made of 3 series of round tubes (18 and 16 mm diameter), to avoid clogging and to grant:

- LARGE WATER FLOW**
- GREAT EXCHANGE SURFACE**
- LOW PRESSURE DROPS**
- HIGH WORKING PRESSURE (up to 11 bar)**



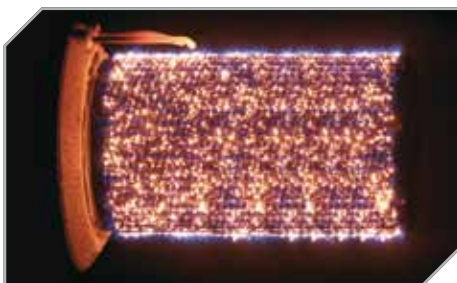


**ECOLOGIC  
PREMIX  
BURNER**

Ecologic premix Commercial water heaters have a constant air/gas ratio in each point of the turndown range of the burner, decreasing polluting emissions and optimising efficiency. The premix burner is made of "Fecralloy" a special metal fibre and has a round shape. **Cosmogas ecologic premix burner** spreads short and perfectly nourished flames.

**ADVANTAGES:**

- High-efficiency combustion
- Low polluting emissions (CO<15 ppm and NOx<15 ppm)
- Natural gas and LPG operating



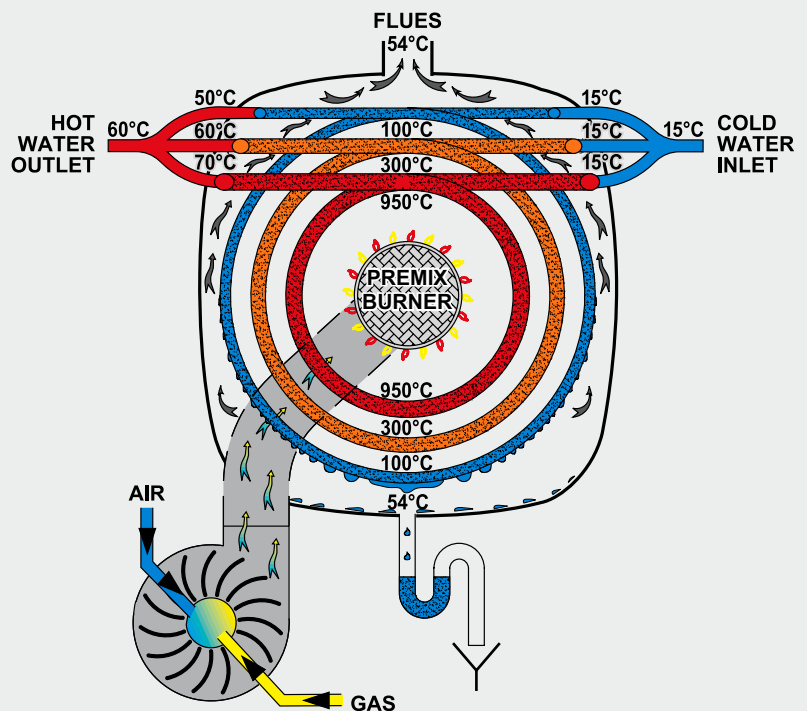
**COSMOMIX  
PATENTED  
PREMIX SYSTEM**

The innovating premix system employed in **AGUAdens T condensing** commercial water heaters allows an exceptional turndown ratio of 1:20 (**AGUAdens 280 T**)

**THE ONLY PRIMARY HEAT EXCHANGER ABLE TO WORK IN DIRECT CONTACT WITH MAINS WATER**

Cosmogas is the only manufacturer who can offer a Titanium primary heat exchanger that can be directly supplied by mains water guaranteeing a great resistance to the corrosion and the aggressiveness of chlorinated waters.

Thanks to low inlet temperatures the R.V.C. exalts the condensing effect and supplies D.H.W. even at high temperatures, maximizing savings and reducing to minimum the thermal inertia



The "variable" circulation of the fluid allows a flue gas/water upstream thermal exchange, this sets up a high efficiency that quickly leads to flue gas condensing. During the operating, input cold water is distributed on Ø16 and Ø18 mm round tubes series. The advantage of such a system is to exalt the condensing effect and get better outputs.

# COSMOGAS SYSTEM WORKS ALWAYS IN CONDENSING MODE

## EFFICIENCY ALWAYS GUARANTEED IN CONTINUOUS AND PEAK PERIODS

The innovative design of **AGUAdens T**, instantaneous commercial water heater, combined with **AGUAtank**, storage tank constitutes a perfect semi-rapid system that can provide hot water exactly when needed. **AGUAdens T**, produces continuous D.H.W. which adds to **AGUAtank**

storage allows the rising of D.H.W. availability during peak periods. All advantages of a commercial instantaneous water heater combined with all the benefits of the storage to meet any water need.



### AGUADENS T + AGUATANK SYSTEM "PERFECT SEMI-RAPID"

To optimise **AGUAdens T** performance, Cosmogas has designed **AGUAtank**, an inertial D.H.W. storage tank (150 - 200 - 300 - 500 - 750 - 1000 litres capacity) in this way the system always guarantees:

- D.H.W. constant and stable temperature even in case of small withdrawals
- Higher availability of domestic hot water during peak period withdrawals
- Limited ignitions of the burner in presence of small withdrawals, protecting the environment and guaranteeing a further saving

The system satisfies both peak periods and continuous D.H.W. needs.





## CONDENSING D.H.W. THE ACTUAL ENERGY SAVER

New energy saving legislation and modern residential and commercial building insulation techniques, have significantly reduced heating needs, and it's going to decrease. With the diffusion of high performance showers, cascade showers, Jacuzzis, wellness and fitness centres, **hot water usage is increasing** as much as fuel consumption for its production. If we consider that **hot water is used 365 days a year** and at all latitudes, **to save upon hot water production has become a priority**, above all in tertiary sector with high water needs.



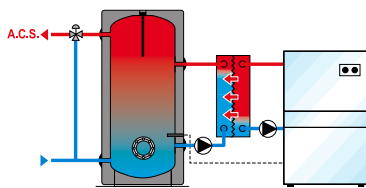
## ALL THE ADVANTAGES OF DIRECT EXCHANGE: AGUADENS T WORKS ALWAYS IN CONDENSING MODE

If we compare any D.H.W. production system, from the traditional semi-rapid one to that with both internal and external heat exchanger it can be noticed that thermal exchange always happens in two phases: hot water heating in the primary heat exchanger of the water heater and further thermal exchange between the water of the primary circuit and the sanitary water (fig. 1, 2). When **AGUAdens T** is connected to **AGUAtank**, D.H.W. heating directly

happens inside the primary heat exchanger (fig. 3). Therefore there are no inserted heat exchangers and the exchanged output is always the one given by **AGUAdens T**. This sets very fast charging and recovery times. For all these reasons **AGUAtank** storage tanks coupled to **AGUAdens T** are a **50% smaller** on average than capacities of storage tanks with coil or tank in tank, etc..

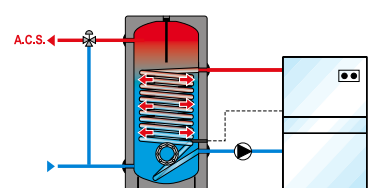
### 1 TRADITIONAL SEMI-RAPID SYSTEM

- No condensing
- Reduced efficiency due to double thermal exchange
- 2 pumps to be installed
- Higher thermal loss
- A lot of ground space occupied



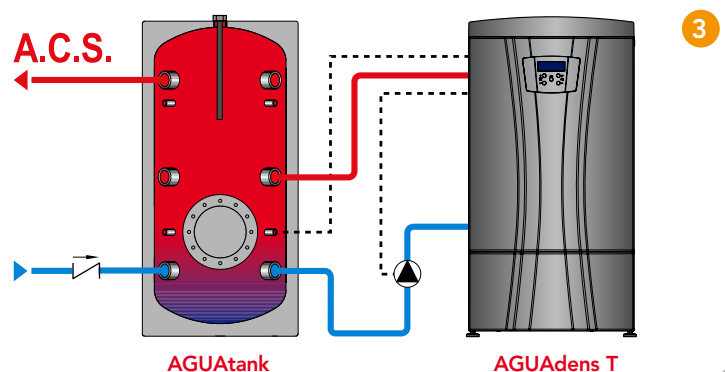
### 2 WATER TANK WITH INTERNAL HEAT EXCHANGER SYSTEM

- No condensing
- High recovery times
- Efficiency of the system bound to coil surface
- A lot of ground space occupied



### ADVANTAGES OF COSMOGAS SEMI-RAPID SYSTEM

- It works always in condensing mode
- D.H.W. direct heating
- D.H.W. production uses all the power of **AGUAdens T**
- 1 connection and 1 pump only
- Reduced volume of the storage tank
- Reduced recovery times
- Less ground space occupied

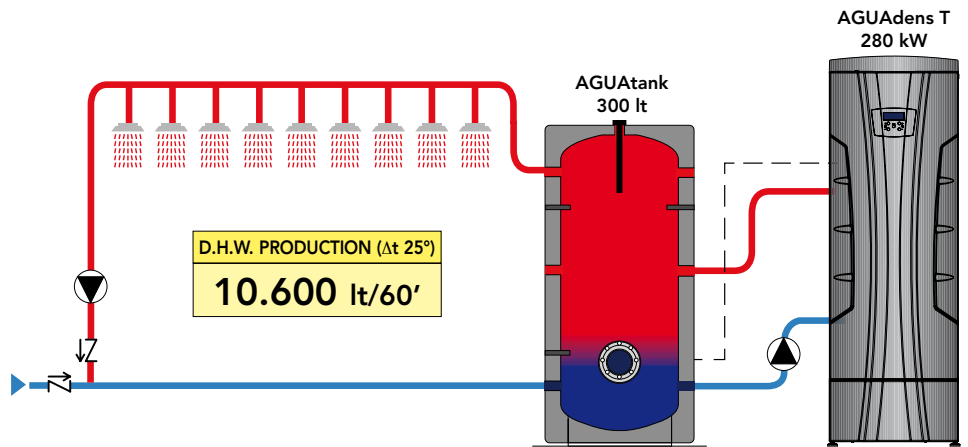




# EFFICIENCY AND VERSATILITY

## SUITABLE FOR NEW AND RENEWAL OF THERMAL POWER PLANTS

In many utilities, D.H.W. production systems consist of big storage tanks that, as well as promote proliferation of bacteria, they occupy a lot of ground space and are characterized by relevant energy loss and waste. According to actual needs of users, Cosmogas semi-rapid system, always allows the choice of proper balance between output and storage. **AGUAdens T + AGUAtank** semi-rapid system guarantees high performances even with extremely reduced storage (1 lt x kW) and thanks to its multi-burner setting, it can heat only the water needed without any waste, reducing consumption to the minimum.



### WHEREVER THERE IS THE NEED FOR A LOT OF D.H.W.

**AGUAdens T + AGUAtank** semi-rapid system is simply perfect for any industrial or tertiary installation with high domestic hot water needs:

- Hotels
- Campings
- Flat buildings
- Restaurants and Cafeterias
- Schools
- Sport centres
- Wellness centres
- Hospitals
- Car washes
- Slaughterhouses
- Distilleries
- Tanneries
- Factories
- Farms



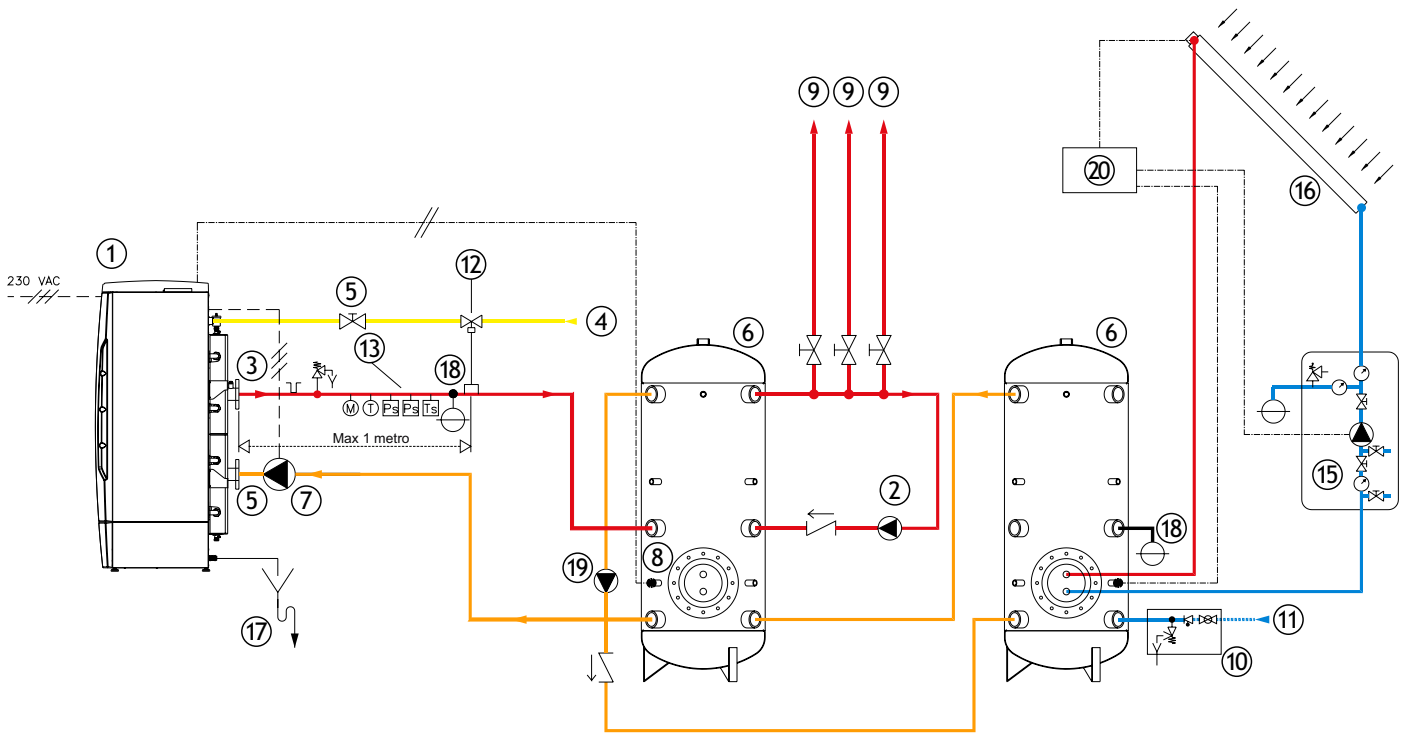
### COVER-BOX T SAFE AGAINST BAD WEATHER

To install **AGUAdens T** outdoor it is available **COVER-BOX T**, the CE certified, insulated, weather resistant cover made of painted galvanized sheet. Its reduced size and elegant design make its placement easy. The polyethylene insulation, high insulation capacity, fireproof, gives an IP X5D electric protection degree and protects the water heater from frost. Possibility of remote control via 885IF 0-10V interface.

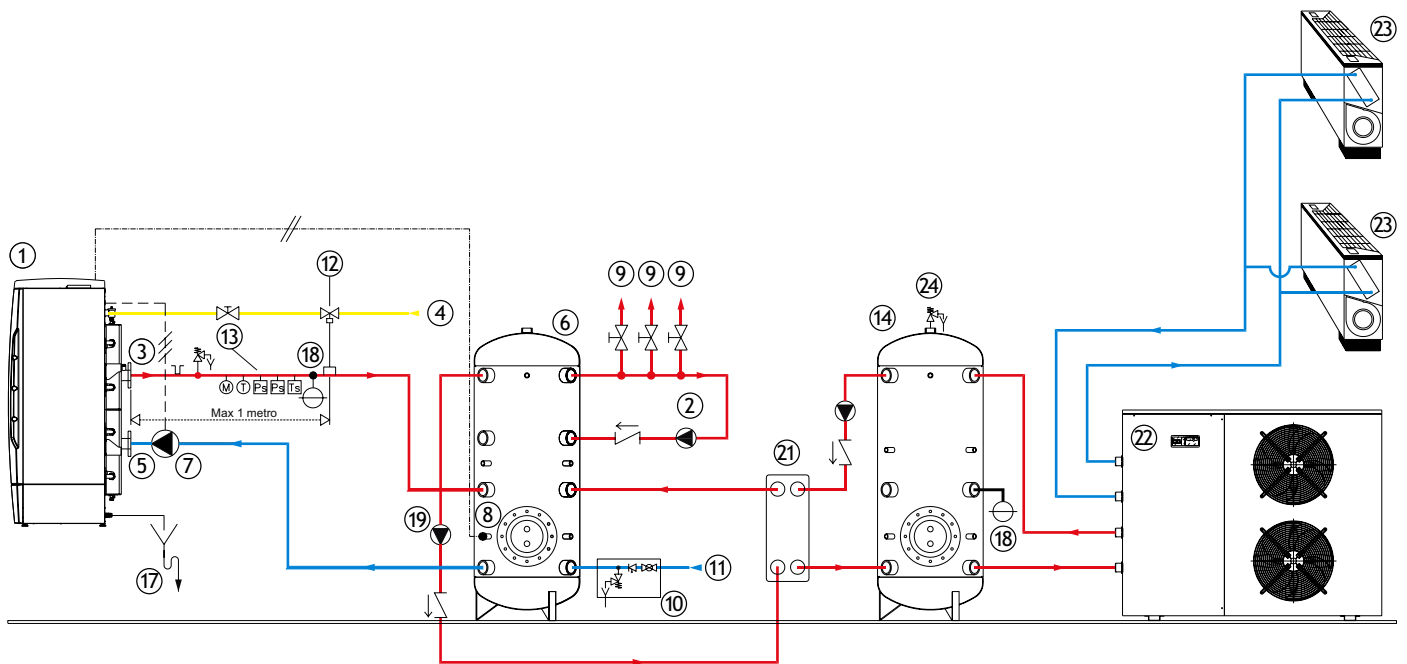


# EXAMPLES OF APPLICATION WITH RENEWABLE ENERGY

CONDENSING SEMI-RAPID SYSTEM WITH SOLAR PRE-HEATING



CONDENSING SEMI-RAPID SYSTEM WITH HEAT PUMP INTEGRATION



- 1 - AGUAdens T commercial water heater
- 2 - Circulating pump
- 3 - D.H.W. supply from AGUAdens T
- 4 - Gas inlet
- 5 - AGUAdens T cold water inlet
- 6 - AGUAtank storage tank
- 7 - AGUAtank filling pump
- 8 - AGUAtank temperature sensor
- 9 - Sanitary users

- 10 - Hydraulic safety group
- 11 - Cold water inlet
- 12 - Shut-off valve
- 13 - Safety kit
- 14 - Technical water storage tank
- 15 - Filling and safety solar group
- 16 - Solar panel
- 17 - Condensate drain
- 18 - Expansion vessel

- 19 - Pouring-off pump
- 20 - Solar control board
- 21 - Plate exchanger
- 22 - 4 tubes heat pump
- 23 - Fan-coils
- 24 - Safety valve

The examples reported are merely indicative

## STANDARD DETAILS THAT MAKE THE DIFFERENCE

### STANDARD CONDENSATE ACIDITY NEUTRALIZER

Condensing water produced during the combustion process react to combustion products turning into acid water. To put down acidity, each **AGUAdens T** commercial water heater is standard equipped with a condensate acidity neutralizer, properly sized to restore the pH to tolerable values

- Content: 10 kg of limestone



### CONDENSATE BLOCKED DRAIN SWITCH

A special inner condensate cup, collects condensate and makes it flow freely to the drain; in the condensate cup is connected a blocked drain switch that cuts off the commercial water heater if the level of condensate exceeds the permitted limit.



### STANDARD WATER FLOW METER AGAINST SMALL FLOWS

Each heat exchanger inside **AGUAdens T** is equipped with a standard flow meter to guarantee a more accurate management of the flows and to make the system operate in a more efficient way.



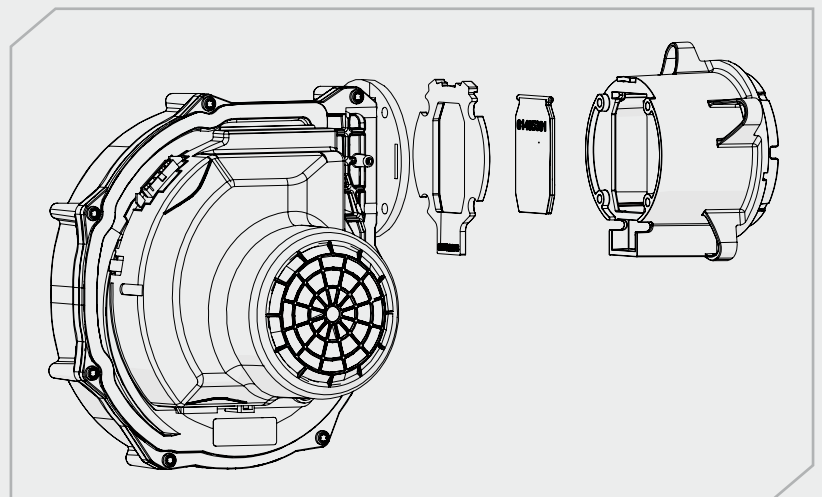
### STANDARD AIR FILTER

**AGUAdens T** is equipped with a standard air filter to protect the burner, the combustion chamber and the heat exchanger from dust and impurities, ensuring a better efficiency of the combustion circuit.



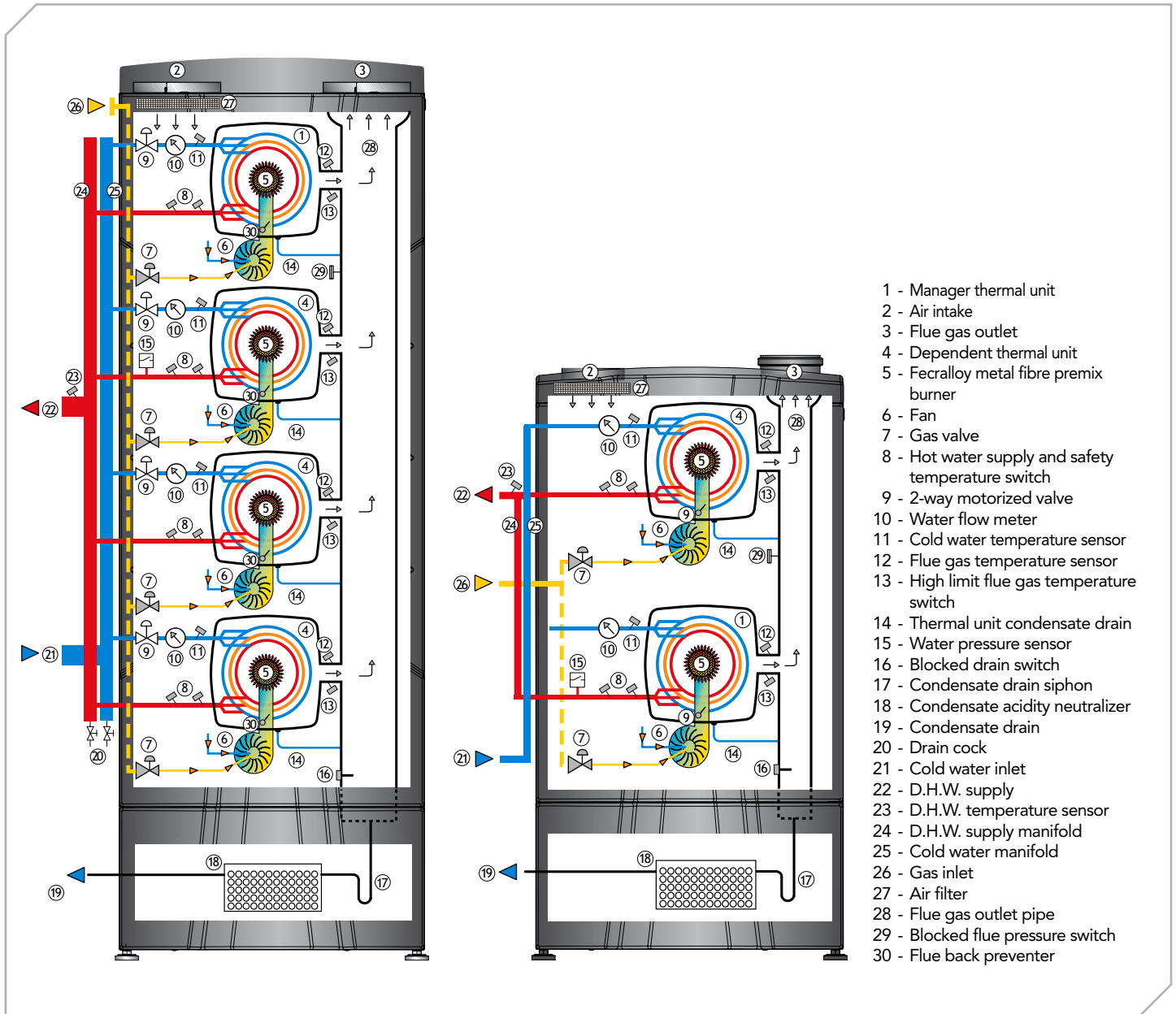
### INTEGRATED FLUE BACK PREVENTER

Each burner, inside **AGUAdens T**, has been standard equipped with a flue back preventer, on the combustion circuit, to prevent the possible flue gas recirculation among different exchangers, in case of cascade sequence installations.





## OPERATING SCHEMES



### IT GETS THROUGH A 65 cm WIDE DOOR

AGUAdens T represents the best balance between power, weight and size. Being extremely compact it gets through a 65 cm wide door, allowing easy access into thermal power plant. Thanks to its light weight it is possible to easily handle it even in case of difficult installations.



### ADJUSTABLE FEET FOR PROPER ALIGNMENT

AGUAdens T is equipped with a series of adjustable feet for proper alignment of the commercial water heater. The height of the feet varies from 0 to 10 mm.



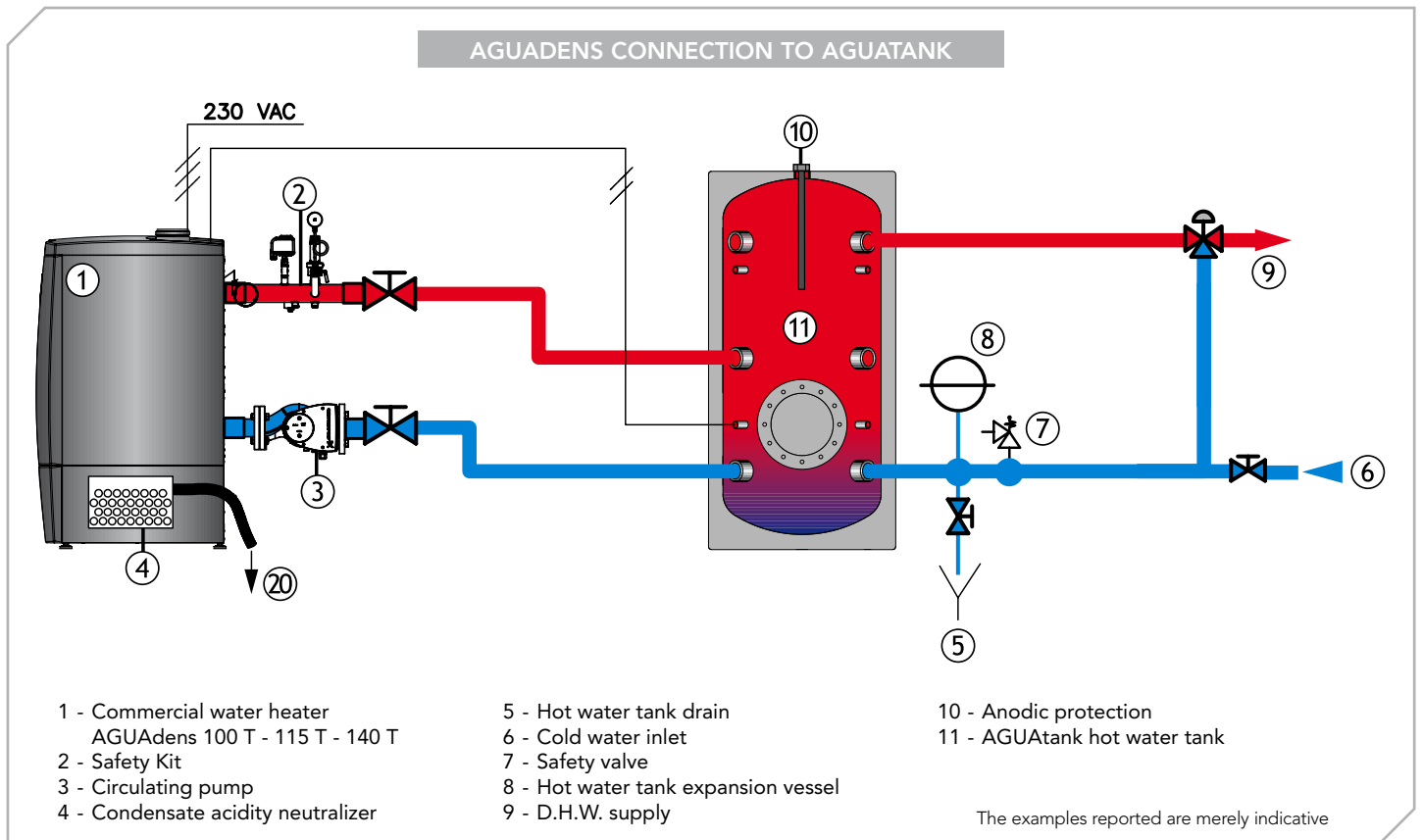


# EVERYTHING UNDER CONTROL

## STANDARD CONTROL DEVICE FOR PERFECT OPERATING OF THE INSTALLATION

The control board of the commercial water heater allows the management of:

- Sanitary circuit pump
- Output proper modulation
- Pump unlock system
- Auto diagnostic of all components and functions: visualization of errors and lockouts, temperature sensors, ionisation current, fan rotation speed, water flow rate, water pressure
- Antifreeze device
- Low water flow protection
- Low water pressure protection
- Flue blocked pressure switch
- Condensate blocked drain switch



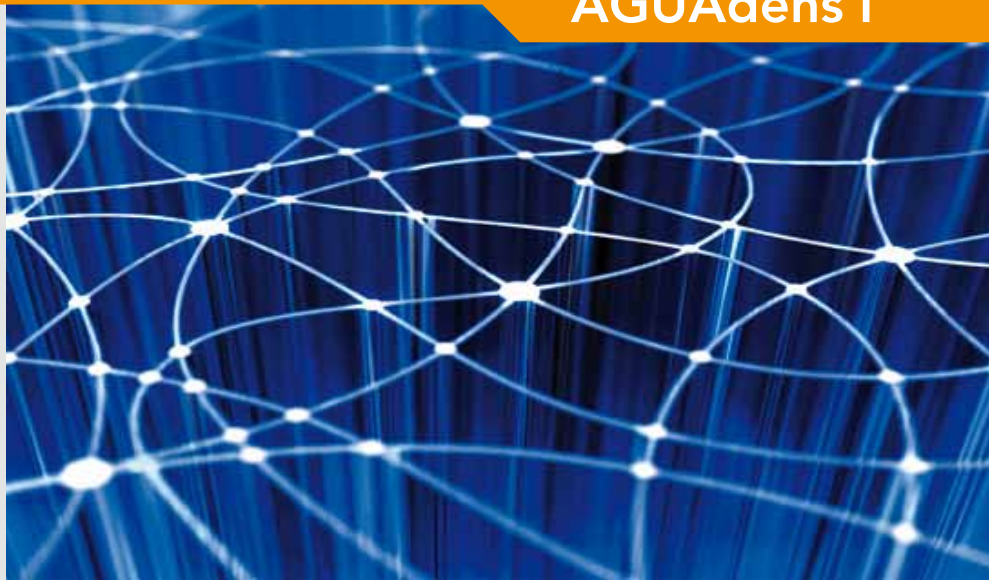


## TELE MANAGEMENT AND MODBUS PROTOCOL

AGUAdens T can be equipped with:

- 885IF (optional) interface that allows the control of boilers through 0-10V analog signal or MODBUS digital signal
- or dedicated interface, that can be integrated to all devices with LonWorks or BACnet protocol

Suitable for commercial, industrial and condominium solutions. The installer or maintainer can then configure, monitor and remotely control the entire operation of the commercial water heater, helping to reduce energy consumption and at the same time lowering the cost and frequency of maintenance.



## SIMPLE AND INTUITIVE CONTROL PANEL

Control panel with digital back-lighting display for an easy and intuitive visualization of parameters, boiler phases, error messages, with electronic temperature control. Display back-lighting turns off after 5 minutes of inactivity (SAVE ENERGY).



## SANITARY CIRCUIT PUMP REGULATION

AGUAdens T control board, besides the handling of the sanitary circuit pump, allows the visualization of the water flow in l/min and sets the correct water speed according to the hardness (see page 16), preserving the integrity of the heat exchanger and the perfect efficiency of the system.

## EASY ELECTRIC CONNECTIONS

AGUAdens T is equipped with a pre-wired terminal box with connectors and clear symbols, ready for an easy connection to each installation component like sensors, pumps and control boards.

Next to the terminal box there is the 885IF interface set up that allows a 0-10V input.





**UP TO 560 l/min D.H.W.**

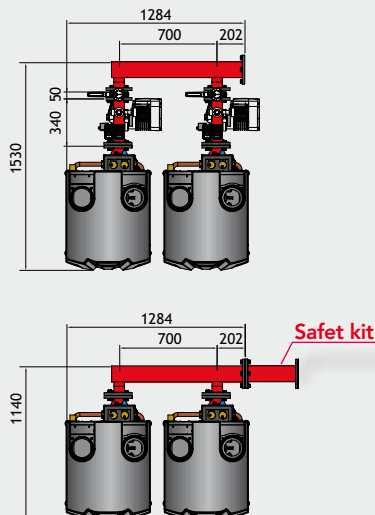
## AGUAdens T CASCADE SEQUENCE

- **UP TO 4 AGUAdens 280 T** - AGUAdens 280 T water heaters can be connected in cascade sequence up to 4 units to achieve a maximum power of 1176 kW. One unit operates as "Manager" and the other as "Dependents" modulating to get the requested output.
- **MINIMUM GROUND SPACE** - can be connected to each other in cascade sequence with a minimum distance of 10 cm. They have been conceived to have access to both front and rear side, to facilitate any type of maintenance.
- **MAXIMUM D.H.W. SUPPLY** - 4 units in cascade sequence provide up to 560 l/min at  $\Delta t$  30°C domestic hot water.



## SAFETY KIT

Depending on local code, it is useful to install a safety kit on each unit.



## CASCADE SEQUENCE CONTROL

AGUAdens 280 T cascade sequence is controlled by a 885HC sequencer that manages the rotation and the sequence.

**Each water heater must be equipped with a 885IF interface.**

AGUAdens 280 T cascade sequence is possible through a simple daisy-chain wiring connection.





## WIDE RANGE OF ACCESSORIES ON DEMAND

Each **AGUAdens T** gas condensing water heater can be equipped with one or more of the following accessories on demand:

- AISI 316L stainless steel safety kit complete with shut-off gas valve (suitable for D.H.W.)

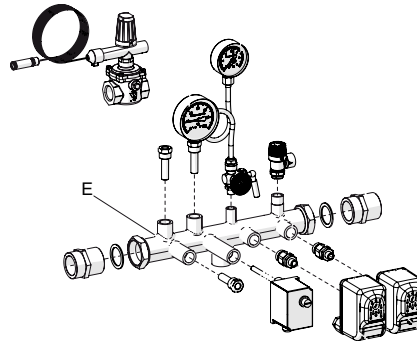
- Variable inverter pump
- Polypropylene flue gas outlets

### SAFETY KIT COMPLETE WITH SAFETY DEVICES UP TO 140 kW

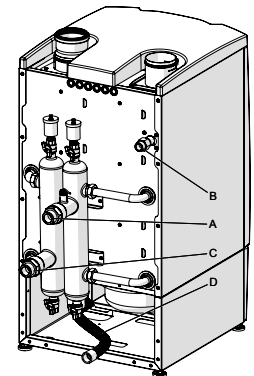


STAINLESS  
STEEL  
AISI 316L

A- D.H.W. supply 1" 1/2  
B- Gas inlet 1"  
C- Cold water inlet 1" 1/2



D- Condensate drain Ø28 mm  
E- Safety kit complete with shut-off valve

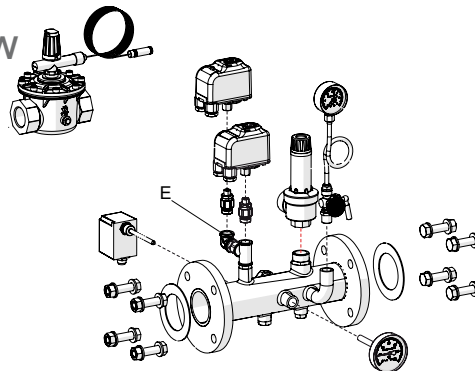


### SAFETY KIT COMPLETE WITH SAFETY DEVICES UP TO 280 kW

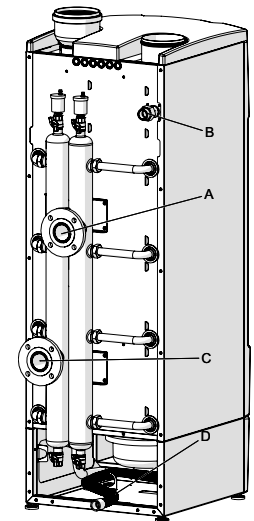


STAINLESS  
STEEL  
AISI 316L

A- D.H.W. supply DN 65 PN 16  
B- Gas inlet 1" 1/4  
C- Cold water inlet DN 65 PN 16

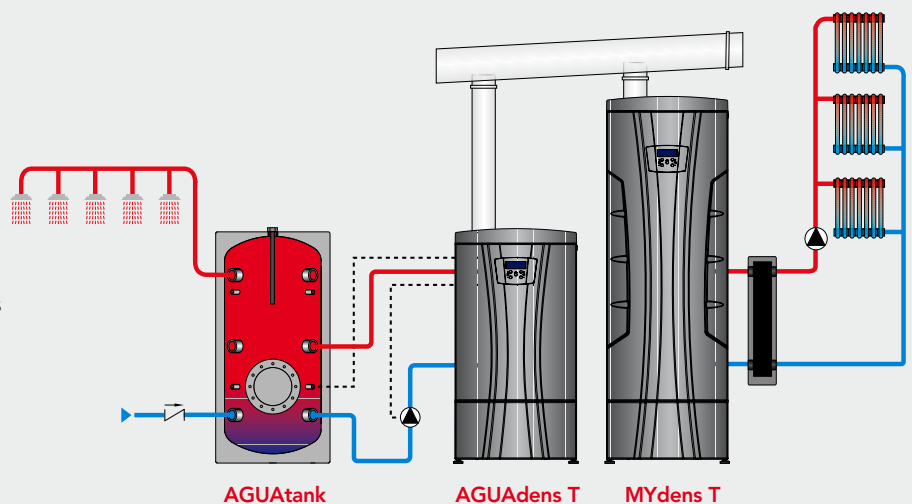


D- Condensate drain Ø28 mm  
E- Safety kit complete with shut-off valve



### SAME FLUE SYSTEM FOR AGUADENS T AND MYDENS T

UNI 11528 legislation allows the connection of two appliances with similar characteristics in the same flue system even if they serve different installations. It is therefore possible to combine a condensing water heater **AGUAdens T** to a condensing boiler **MYdens T** connecting them in the same flue system. In this way both appliances can be dimensioned according to real domestic hot water needs (**AGUAdens T**) and heating needs (**MYdens T**) optimising performances and exalting the condensing effect in both installations.





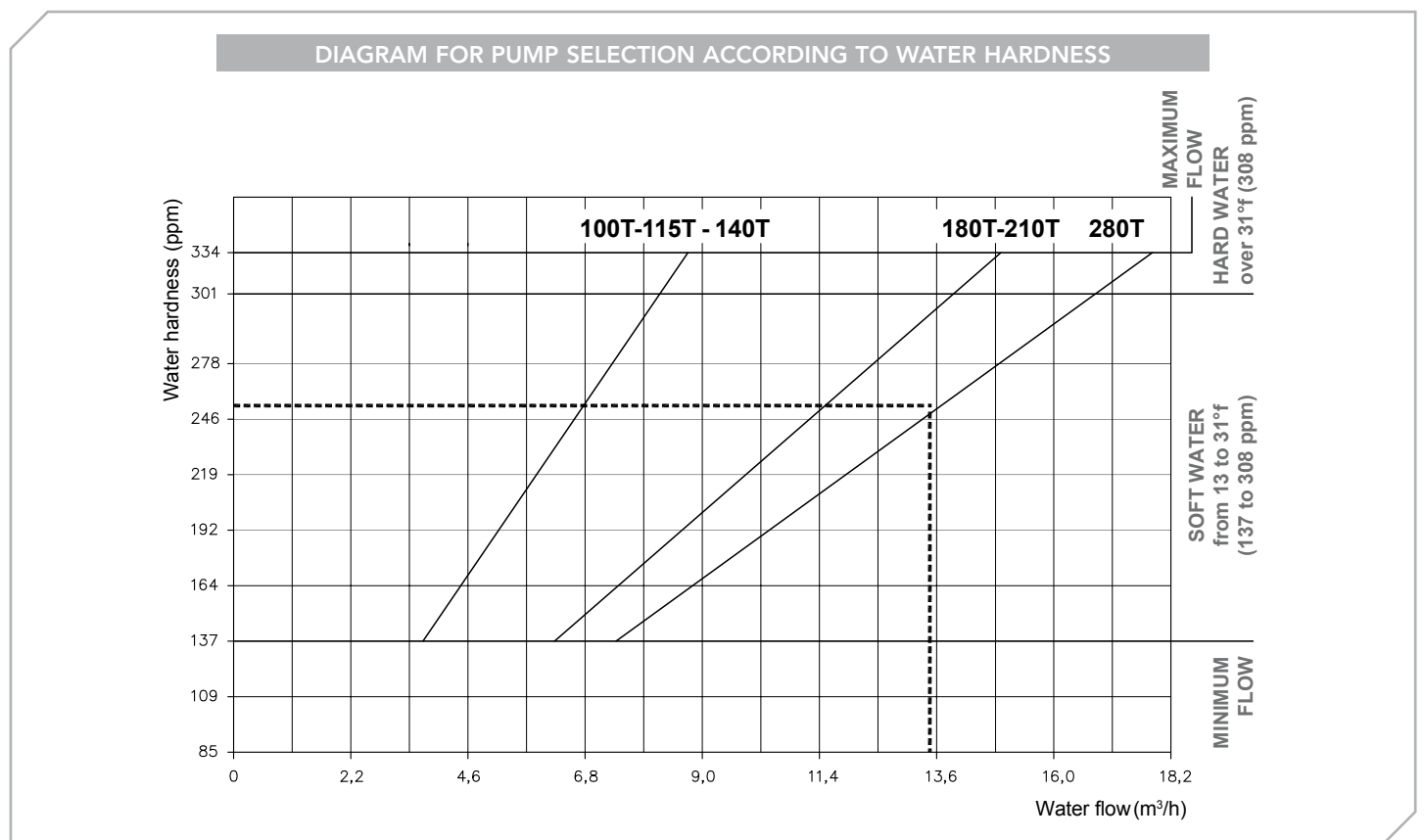


# GUARANTEED EFFICIENCY

## WATER SPEED AND ANTI LIMESTONE FUNCTION

To maintain the maximum efficiency of **AGUAdens T** water heater it is fundamental to guarantee a certain speed of the inlet water inside the R.V.C. heat exchanger. To assure this a load pump is needed to regulate the correct water flow according to inlet water hardness, as shown in the diagram below.

The control panel allows the visualization of water flow in l/min and sets the correct speed according to the hardness. For instance if mains water supplies **AGUAdens 280 T** with a hardness equal to about 25°f, the water heater will demand a minimum water flow of 13,5 m<sup>3</sup>/h.



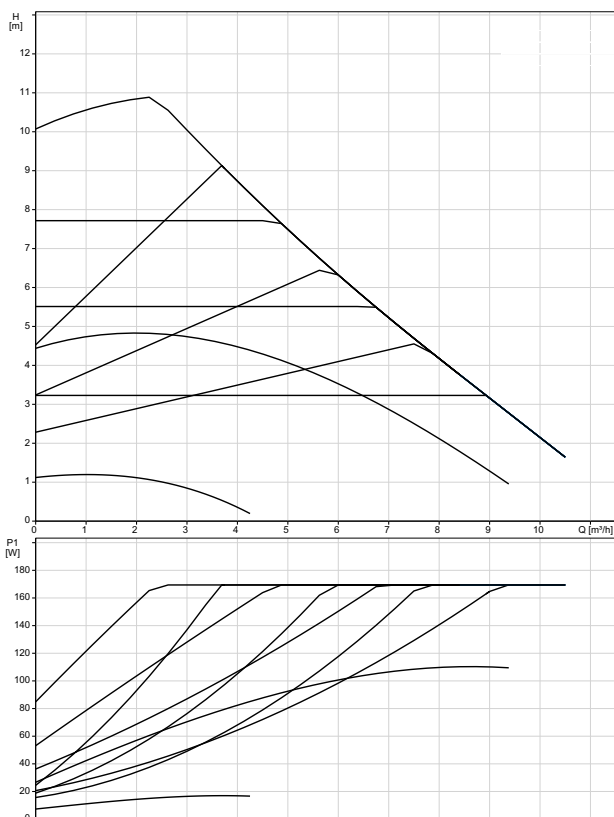
# VARIABLE CIRCULATION MODULATING PUMP WITH STAINLESS STEEL BODY

AGUAdens T advanced electronics allow the commercial water heater to direct manage the inverter pump, with **stainless steel body**, of the primary circuit (available on demand) that combined with 2-way motorized valves guarantees the perfect balance between heat output and heat input, maximizing gas condensing.



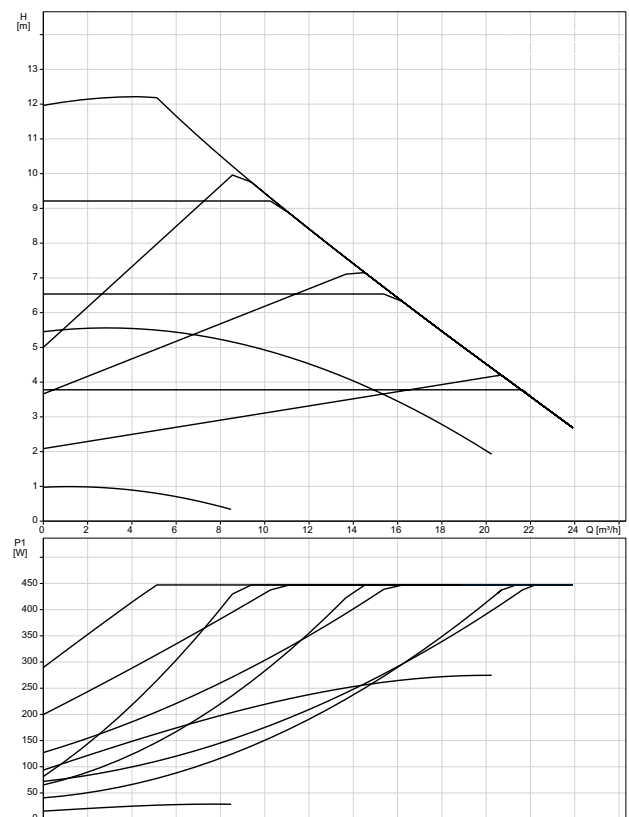
MAGNA 1 32-100 (Grundfos) Inverter Pump

Up to 140 kW (on demand)



MAGNA 1 40-120 (Grundfos) Inverter Pump

Up to 280 kW (on demand)



## SAME SPARE PARTS

Spare parts are the same for the whole power range of **AGUAdens T** commercial water heaters. The after sale service can do maintenance on all appliances with a very limited number of spare parts.

- Fan
- Gas valve
- Control board
- Display
- Spark generator
- Water pressure sensor
- Water flow sensor
- Temperature sensor
- Ignition electrodes
- Detection electrodes
- Modbus board



## EASY MAINTENANCE

**AGUAdens T** has been designed with a front access to all inner components for an easy maintenance.

**AGUAdens T** is characterized by uniformity of functions and components, for a quick maintenance and management savings.



# AGUAdens T

## TECHNICAL DATA

DATA		AGUAdens T		
		100 T	115 T	140 T
Type		B23; C53; C63	B23; C53; C63	B23; C53; C63
Category		II2H3P	II2H3P	II2H3P
CE type certificate (PIN)		0476CR1272	0476CR1272	0476CR1272
Maximum input	kW	99,0	115,6	140,0
Minimum input	kW	12,0	12,0	14,7
Turndown ratio		1:7	1:8	1:10
Maximum output "P"	kW	103,0	120,2	145,4
Efficiency at max output in D.H.W. production (50°C)	%	104	104	104
Minimum output	kW	12,8	12,8	15,7
Efficiency at min. output in D.H.W. production (40°C)	%	107	107	107
Losses at the chimney burner on at maximum output	%	1	1	1
Losses at the chimney burner on at minimum output	%	0,5	0,5	0,5
Losses at the chimney burner off	%	0,1	0,1	0,1
Losses at the casing burner on	%	0,1	0,1	0,1
Losses at the casing burner off	%	0,05	0,05	0,05
Losses at zero load	%	0,05	0,05	0,05
Natural gas flow rate (G20)	m <sup>3</sup> /h	10,47	12,22	14,80
LP gas flow rate (G31)	kg/h	7,68	8,97	10,87
Natural gas supply pressure	mbar	20	20	20
LP gas supply pressure	mbar	37	37	37
Natural gas/LP gas supply minimum pressure	mbar	15/25	15/25	15/25
Natural gas/LP gas supply maximum pressure	mbar	30/45	30/45	30/45
Heat exchanger water content	l	12,68	12,68	15,14
Minimum water flow rate with 2-way motorized valves	l/h	900	900	900
Minimum water flow rate without 2-way motorized valves	l/h	1800	1800	1800
Instantaneous D.H.W. production ( $\Delta t$ 30°C)	l/min	49,2	57,4	69,6
D.H.W. temperature range of adjustment	°C	20-80	20-80	20-80
Maximum temperature	°C	95	95	95
Minimum temperature	°C	20	20	20
Sanitary circuit maximum pressure	bar	11	11	11
D.H.W. minimum pressure	bar	1	1	1
Rated power supply voltage	V	230	230	230
Rated power supply frequency	Hz	50	50	50
Absorbed electric power	W	220	220	300
Electric protection rating	IP	IP 20	IP 20	IP20
Electric power of the generator aux. in front of the burner	W	220	220	300
El. pow. of the generator aux. at min pow. in front of the burner	W	40	40	40
Electric power of the generator aux. behind the burner	W	20	20	20
El. pow. of the generator aux. at min pow. behind the burner	W	20	20	20
Auxiliaries absorbed power at rated load	W	200	200	280
Auxiliaries absorbed power at intermediate load	W	30	30	30
Auxiliaries absorbed power at zero load	W	10	10	10
Air inlet/flue gas outlet diameter (split)	mm	110	110	110
Air inlet/flue gas outlet maximum length (split)	m	20	20	20
Equivalent length of one elbow	m	4	4	4
Weightened CO (0% O <sub>2</sub> with Nat. gas)	ppm	15	15	15
Weightened NO <sub>x</sub> (0% O <sub>2</sub> with Nat. gas) (EN 483 and 297)	ppm	15	15	15
CO <sub>2</sub> at minimum/maximum output with Nat. gas	%	8,5/9,0	8,5/9,0	8,5/9,0
CO <sub>2</sub> at minimum/maximum output with LP gas	%	9,8/10,2	9,8/10,2	9,8/10,2
Min./max. flue gas temperature at water heater outlet	°C	30/90	30/90	30/90
Flue gas mass flow at minimum/maximum output	kg/h	20,7/163	20,7/190	25,4/230
$\Delta t$ flue gas temperature/return (100% load)	°C	16	16	17
$\Delta t$ flue gas temperature/return (30% partial load)	°C	1	1	1
Available head at flue gas outlet	Pa	110	110	110
Combustion air maximum temperature	°C	40	40	40
Max. negative press. allowed in the air intake/flue gas outlet system	Pa	100	100	100
Condensate maximum flow rate	l/h	12,0	14,4	17,4
Condensate average acidity	Ph	4	4	4
Operating room temperature	°C	0÷50	0÷50	0÷50
Weight	kg	142	142	147



## AGUAdens T TENDERING SPECIFICATIONS

Adens		
180 T	210 T	280 T
B23; C53; C63	B23; C53; C63	B23; C53; C63
II2H3P	II2H3P	II2H3P
0476CR1272	0476CR1272	0476CR1272
173,4	210,0	280,0
14,7	14,7	14,7
1:11	1:15	1:20
180,3	218,4	291,2
104	104	104
15,7	15,7	15,7
107	107	107
1	1	1
0,5	0,5	0,5
0,1	0,1	0,1
0,1	0,1	0,1
0,05	0,05	0,05
0,05	0,05	0,05
18,30	22,20	29,61
13,50	16,30	21,73
20	20	20
37	37	37
15/25	15/25	15/25
30/45	30/45	30/45
22,70	22,71	30,28
900	900	900
2700	2700	3600
86,0	104,3	139,1
20-80	20-80	20-80
95	95	95
20	20	20
11	11	11
1	1	1
230	230	230
50	50	50
430	430	590
IP 20	IP 20	IP 20
430	430	591
40	40	40
20	20	20
20	20	20
410	410	571
30	30	30
10	10	10
160	160	160
20	20	20
4	4	4
15	15	15
15	15	15
8,5/9,0	8,5/9,0	8,5/9,0
9,8/10,2	9,8/10,2	9,8/10,2
30/90	30/90	30/90
25,4/284	25,4/345	25,4/460
17	17	17
1	1	1
110	110	110
40	40	40
100	100	100
21,5	26,1	34,8
4	4	4
0÷50	0÷50	0÷50
211	211	249

Modular, D.H.W. only production, commercial gas condensing water heater for indoor installation

- Type COSMOGAS AGUAdens \_\_\_\_\_ T
- Vertical water heater height \_\_\_\_\_ mm
- floor dimensions 600 x 700 mm
- Maximum heat output (80/60) \_\_\_\_\_ kW
- Maximum heat output (50/30) \_\_\_\_\_ kW
- Minimum heat output (80/60) \_\_\_\_\_ kW
- Minimum heat output (50/30) \_\_\_\_\_ kW
- Maximum heat input "Q" \_\_\_\_\_ kW
- Minimum heat input \_\_\_\_\_ kW
- Efficiency at 100% load (80/60) \_\_\_\_\_ %
- Efficiency at maximum heat output (50/30) \_\_\_\_\_ %
- Efficiency at minimum heat output (80/60) \_\_\_\_\_ %
- Efficiency at minimum heat output (50/30) \_\_\_\_\_ %
- Efficiency at 30% partial load \_\_\_\_\_ %
- Turndown ratio 1: \_\_\_\_\_
- R.V.C. (Radial Variable Circulation) water tubes heat exchangers made of AISI 316 Ti (Titanium) stainless steel, without weld joints
- Maximum working pressure 11 bar
- Managing, rotation and cascade sequence control of each heat exchanger (thermal unit)
- Forced draught and sealed chamber or open chamber
- Patented air/gas ratio and combustion control
- Ecologic total modulation premix burner made of metal fibre
- Class 5 (low polluting emissions: Nitrogen Oxides (NOx) = 15 p.p.m. - Carbon Monoxide (CO) = 15 p.p.m.)
- Electronic ignition and ionization flame control
- Electronic modulating fan, total modulation of the flame and P.I.D. temperature control
- Modulating pneumatic gas valve
- High limit supply temperature switch
- Supply temperature range 20 - 80°C
- Anti-smell siphon for condensate drain complete with flexible hose
- Water heater water pressure switch
- Blocked flue pressure switch
- Water flow meter
- Drain cock
- Power supply = 230 V, 50 Hz
- Bipolar main power switch
- Electric protection rating = IP 20
- Connection to outdoor sensor to control self-adaptive supply temperature
- Hot water storage tank temperature sensor
- Antifreeze device
- Visualization of supply, outdoor, water heater, sanitary circuit if connected to a hot water tank, auto-diagnostic of all components and function, PC serial connection for diagnostic
- Backlit digital display
- Remote control set up
- Black painted plate casing complete with window to access the condensate acidity neutralizer (standard)

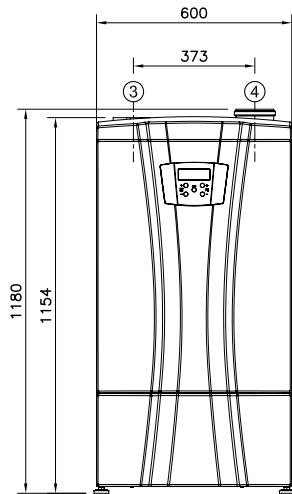
**On demand:**

- 2-way motorized valves to adjust the water flow on each thermal element

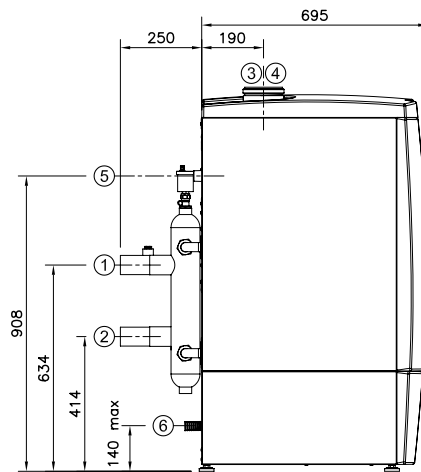
# SIZE AND CONNECTIONS

## AGUAdens T

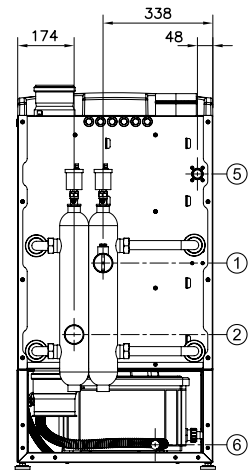
### AGUAdens 100 T - 115 T - 140 T



FRONT VIEW



SIDE VIEW



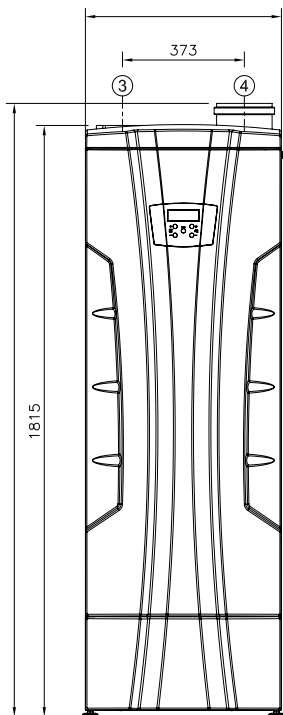
REAR VIEW

- 1 - D.H.W. supply 1" 1/2
- 2 - Cold water inlet 1" 1/2

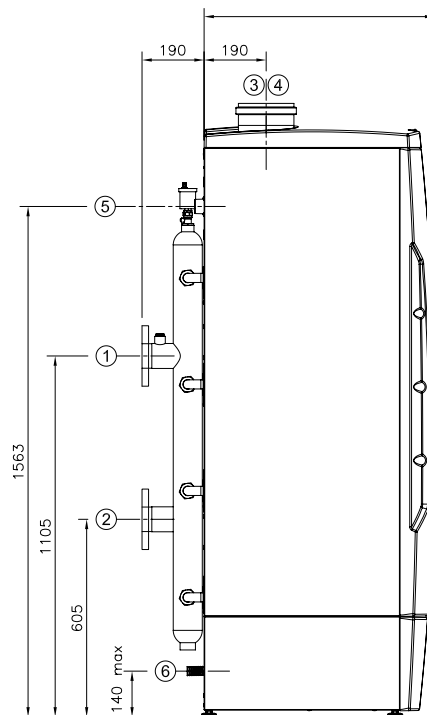
- 3 - Air intake Ø110 mm
- 4 - Flue gas outlet Ø110 mm

- 5 - Gas inlet 1"
- 6 - Condensate drain Ø28 mm

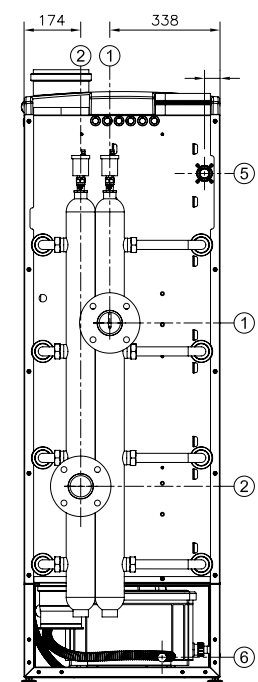
### AGUAdens 180 T - 210 T - 280 T



FRONT VIEW



SIDE VIEW





REAR VIEW

- 1 - D.H.W. supply DN 65, PN 16
- 2 - Cold water inlet DN 65, PN 16

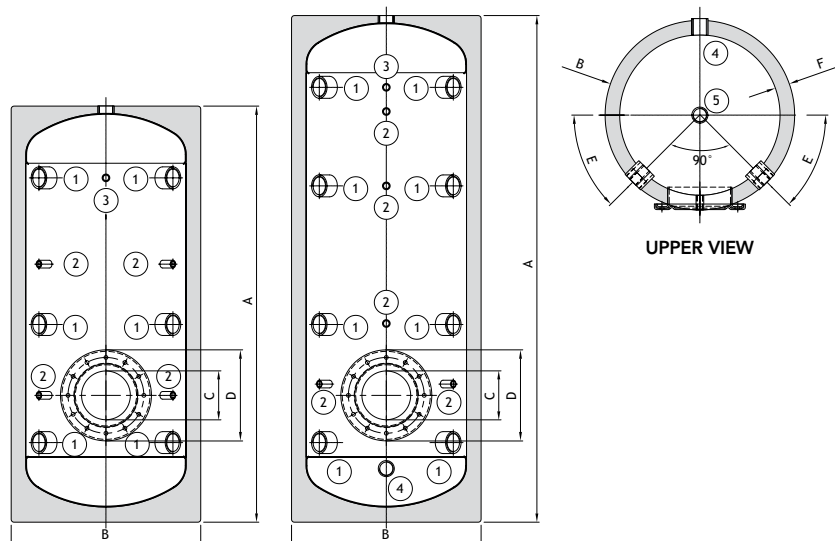
- 3 - Air intake Ø160 mm
- 4 - Flue gas outlet Ø160 mm

- 5 - Gas inlet 1" 1/4
- 6 - Condensate drain Ø28 mm

# TECHNICAL DATA SIZE AND CONNECTIONS AGUAtank

DATA		AGUAtank					
		150	200	300	500	750	1000
Capacity	l	150	200	300	500	750	1000
Heating fluid/heated fluid		water	water	water	water	water	water
Lower heat exchanger		on demand	on demand	on demand	on demand	on demand	on demand
Vessel material		Fe 360 steel	Fe 360 steel	Fe 360 steel	Fe 360 steel	Fe 360 steel	Fe 360 steel
Vessel thickness	mm	3	3	3	3	4	4
Glass lining temperature	°C	800	800	800	800	800	800
Auxiliary coil material		tinned copper	tinned copper	tinned copper	tinned copper	tinned copper	tinned copper
Auxiliary exchanger surface	m <sup>2</sup>	1,53	1,53	1,53	1,53	1,53	1,53
External cover material		PVC	PVC	PVC	PVC	PVC	PVC
Cap material		ABS	ABS	ABS	ABS	ABS	ABS
External cover color		white	white	white	white	white	white
Cap color		black	black	black	black	black	black
Insulation material		PUR	PUR	PUR	PUR	VLIES	VLIES
Insulation thickness	mm	50	50	50	50	100	100
K <sub>bol</sub> (UNI TS 11300-2)	W/K	1,34	1,51	1,68	2,25	2,80	3,50
Standing loss	W	56	62	70	94	116	145
D.H.W. operating maximum pressure	bar	6	6	6	6	6	6
Hydraulic test	bar	12	12	12	12	12	12
Operating maximum temperature	°C	95	95	95	95	95	95
Anodic protection		magnesium	magnesium	magnesium	magnesium	magnesium	magnesium
Empty weight	kg	51	59	75	104	168	180
Energy label		← B 			← C 		

## AGUAtank DIMENSIONS COMPLETE WITH INSULATION AND CONNECTIONS



- 1 - Inlet/supply connections 2" (1 1/2" per 150 litres)
- 2 - Temperature sensor connection 1/2"
- 3 - Thermometer (150 litres excluded)
- 4 - Drain connection 1 1/4" (750 and 1000 litres only)
- 5 - Anodic protection (magnesium up to 500 litres, electronic for 750 and 1000 litres)

AGUAtank 150 No. 6 connections Ø1 1/2"  
 AGUAtank 200/300 No. 6 connections Ø2"  
 AGUAtank 500/750/1000 No. 8 connections Ø2"

Dimensions						
Mod.	150	200	300	500	750	1000
A	1.185	1.335	1.550	1.800	2.060	2.060
B	600	600	650	750	950	990
C	210	210	210	210	210	210
D	300	300	300	300	300	300
E	45°	45°	45°	45°	45°	45°
F	50	50	50	50	100	100

## AGUAtank TENDERING SPECIFICATIONS

Vertical, floor standing, hot water storage tank, for technical and domestic hot water made of Fe 360 steel and internal glass lined treatment

- Type COSMOGAS AGUAtank \_\_\_\_\_
- Capacity \_\_\_\_\_ litres
- Insulation: 50 mm PUR expanded polyurethane (150 to 500 litre models) or 100 mm VLIES (750 and 1000 litre models)
- External cover: white sky
- Connection No.: 6 connections 1 1/2" (150 litre model), 6 connections 2" (200 and 300 litre model), 8 connections 2" (500, 750 and 1000

- litre models) to guarantee a constant and silent supply even at great flows. Pre-equipped for finned copper coil exchanger connection (on demand)
- Inspection flange
- Magnesium anodic protection
- Electric resistance connection (on demand)
- No. 4 temperature sensor connections
- Thermometer connection
- Energy Label: B (150 to 300 litres models), C (500 to 1000 litres models)

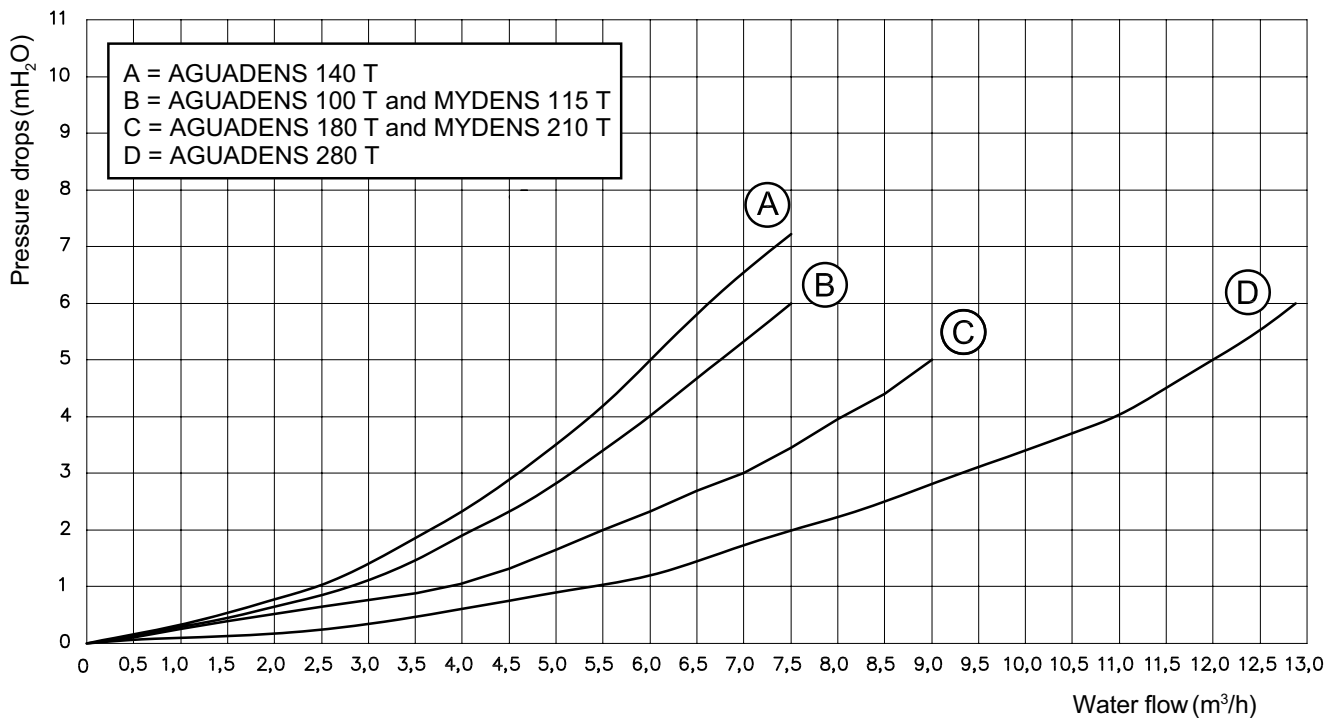


## AGUAdens T + AGUAtank D.H.W. PERFORMANCE

MODEL	Cold water inlet temperature	Hot water supply temperature	Produced litres according to water withdrawal duration					Continuous water flow	Recovery time at 70°C
	°C	°C	10 min	20 min	30 min	50 min	60 min	l/min	min
AGUAdens 100 T + AGUAtank 150 litres	10°C	40	666	1139	1612	2558	3031	47,30	6,3
		45	571	976	1381	2192	2598	40,55	6,3
		50	499	854	1209	1918	2273	35,48	6,3
		60	399	683	967	1535	1818	28,38	6,3
		70	333	569	806	1279	1515	23,65	6,3
	15°C	40	775	1342	1910	3045	3613	56,77	5,8
		45	646	1119	1592	2538	3011	47,30	5,8
		50	553	959	1364	2175	2581	40,55	5,8
		60	430	746	1061	1692	2007	31,53	5,8
		70	352	610	868	1384	1642	25,80	5,8
AGUAdens 115 T + AGUAtank 150 litres	10°C	40	737	1289	1842	2946	3499	55,23	5,4
		45	632	1105	1579	2525	2999	47,33	5,4
		50	553	967	1381	2210	2624	41,42	5,4
		60	442	774	1105	1768	2099	33,13	5,4
		70	369	645	921	1473	1749	27,62	5,4
	15°C	40	860	1523	2186	3512	4174	66,28	5,0
		45	717	1269	1822	2926	3479	55,23	5,0
		50	615	1088	1561	2508	2982	47,33	5,0
		60	478	846	1214	1951	2319	36,82	5,0
		70	391	692	994	1596	1897	30,13	5,0
AGUAdens 140 T + AGUAtank 150 litres	10°C	40	842	1511	2180	3518	4186	66,88	4,5
		45	722	1295	1868	3015	3588	57,33	4,5
		50	632	1133	1635	2638	3140	50,17	4,5
		60	505	907	1308	2111	2512	40,13	4,5
		70	421	755	1090	1759	2093	33,45	4,5
	15°C	40	986	1789	2592	4197	5000	80,27	4,1
		45	822	1491	2160	3498	4166	66,88	4,1
		50	705	1278	1851	2998	3571	57,33	4,1
		60	548	994	1440	2332	2778	44,60	4,1
		70	448	813	1178	1908	2273	36,48	4,1
AGUAdens 180 T + AGUAtank 200 litres	10°C	40	1008	1868	2728	4448	5308	86,00	4,7
		45	864	1601	2338	3813	4550	73,72	4,7
		50	756	1401	2046	3336	3981	64,50	4,7
		60	605	1121	1637	2669	3185	51,60	4,7
		70	504	934	1364	2224	2654	43,00	4,7
	15°C	40	1178	2210	3242	5306	6338	103,20	4,3
		45	981	1841	2701	4421	5281	86,00	4,3
		50	841	1578	2315	3790	4527	73,72	4,3
		60	654	1228	1801	2948	3521	57,33	4,3
		70	535	1004	1473	2412	2881	46,92	4,3
AGUAdens 210 T + AGUAtank 200 litres	10°C	40	1123	2126	3129	5136	6139	100,33	4,0
		45	962	1822	2682	4402	5262	86,00	4,0
		50	842	1595	2347	3852	4605	75,25	4,0
		60	674	1276	1878	3082	3684	60,20	4,0
		70	561	1063	1565	2568	3070	50,17	4,0
	15°C	40	1315	2519	3723	6131	7335	120,40	3,7
		45	1096	2099	3103	5109	6113	100,33	3,7
		50	939	1799	2659	4379	5239	86,00	3,7
		60	731	1400	2068	3406	4075	66,88	3,7
		70	598	1145	1692	2787	3334	54,73	3,7
AGUAdens 280 T + AGUAtank 300 litres	10°C	40	1550	2888	4226	6901	8239	133,78	4,5
		45	1329	2475	3622	5915	7062	114,67	4,5
		50	1163	2166	3169	5176	6179	100,33	4,5
		60	930	1733	2535	4141	4943	80,27	4,5
		70	775	1444	2113	3451	4120	66,88	4,5
	15°C	40	1812	3418	5023	8234	9839	160,53	4,1
		45	1510	2848	4186	6861	8199	133,78	4,1
		50	1294	2441	3588	5881	7028	114,67	4,1
		60	1007	1899	2791	4574	5466	89,18	4,1
		70	824	1553	2283	3743	4472	72,97	4,1

OPERATING CONDITIONS: AGUAtank storage temperature 70°C and dimensioned storage 1 litre per kW.

## PRESSURE DROPS AGUAdens 100 T - 280 T



## ACQUACALDA.TECH - THE CALCULATING SYSTEM FOR REAL D.H.W. NEEDS

Cosmogas has set **acquacalda.tech** a program to calculate the real hot water needs both for the domestic that for the tertiary sector.

A useful work tool for technicians and a valuable support to designers, to define domestic hot water specific needs to each user such as hotels, camping sites, apartment buildings, gymnasiums, football fields.

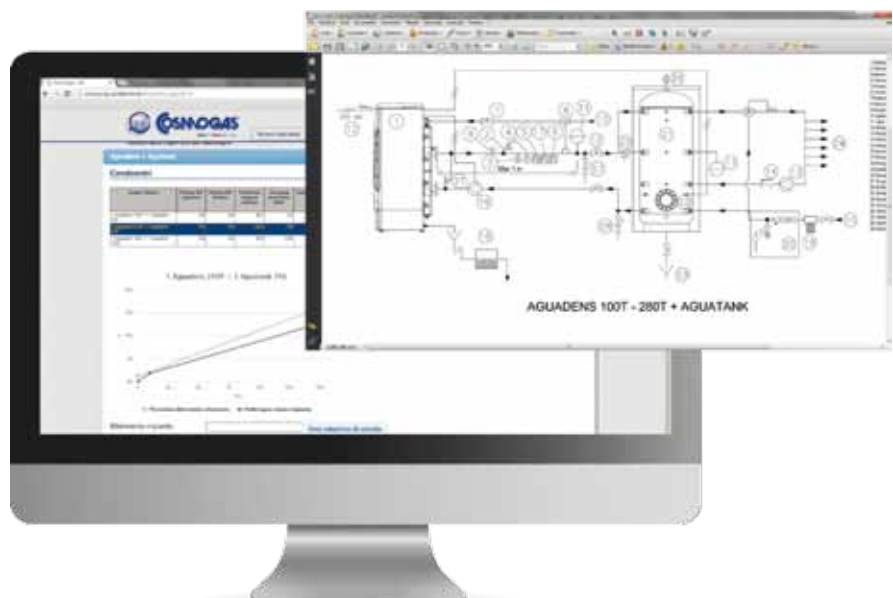
Based upon the legislation: **UNI 9182** - hot and cold water supply and distribution installations - design, installation and testing - the software binds the legislation to the experience of Cosmogas that has been handling with D.H.W. for 50 years.

The application **acquacalda.tech** is not a simple product configurator, but a real work tool that determines the real hot water needs in most demanding users.

In fact the software, after calculating the needs for different users, selects the most suitable Cosmogas Solution.

To speed up and optimize the drafting of estimates and tendering specifications of Cosmogas products, it provides:

- **Technical report**
- **Tendering specifications**
- **Installation schemes in dwg format**
- **Installation schemes in pdf format**



Boilers designed, patented and manufactured by us

COSMOGAS International Certifications



Certified Quality System ISO 9001



EU



Ukraine



Eurasian Union



USA



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