

Commercial gas condensing boilers

## MYdens<sup>®</sup>T



**COSMOGAS<sup>®</sup>**

MADE IN ITALY



Boilers from 60 to 280 kW



## FOREFRONT TECHNOLOGY

### THE NEW GENERATION OF COMMERCIAL GAS CONDENSING BOILERS

**MYdens T** from 60 to 280 kW is the new range of modulating commercial gas condensing boilers, completely patented and assembled by Cosmogas.

- **INNOVATIVE DESIGN, COMPACT, POWERFUL, LIGHTWEIGHT**  
**MYdens T** are designed to be “space-saving”; thanks to their vertical structure they allow to save space in both new and existing thermal power plants. They supply an output up to 280 kW and thanks to their lightness they are easy to carry and to place inside thermal power plants.
- **“MONOBLOCK” MODULARITY**  
Each boiler is composed of 1 to 4 R.V.C. 70 kW heat exchangers: a “monoblock” system that optimises the supplied output according to real thermal needs ensuring maximum efficiency.
- **WIDE TURNDOWN RATIO 1:20**  
The perfect synchrony of heat exchangers cascade sequence control and “rotation”, combined with COSMOMIX air/gas mix system, allow a wide turndown ratio of 1:20 for **MYdens 280 T** and up to 1:160 in case of 8 **MYdens 280 T** cascade sequence to reach an output up to 2240 kW.
- **AISI 316 Ti (Titanium) STAINLESS STEEL HEAT EXCHANGER**  
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 boilers is equipped with ecologic premix burners made of Fecralloy metal fibre.
- **MAXIMUM EFFICIENCY EVEN WITH SMALL FLOWS**  
2-way motorised valves are available among accessories. They allow high seasonal efficiency in systems characterised by frequent and high output variations.

MYdens<sup>®</sup>T



floor standing  
180 - 210 - 280 kW





**floor standing**  
60 - 70 - 100 - 115 - 140 kW

## Why choose MYdens T:

### Savings and efficiency

- Condensing technology
- Total flame modulation (heating and sanitary)
- Certified efficiency up to 107 %
- Suitable water flow to heat exchangers with 2-way motorised valves (60 T and 70 T excluded)
- Cascade sequence control and heat exchangers "rotation"

### Comfort

- Silent
- Outdoor sensor and climate control
- 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

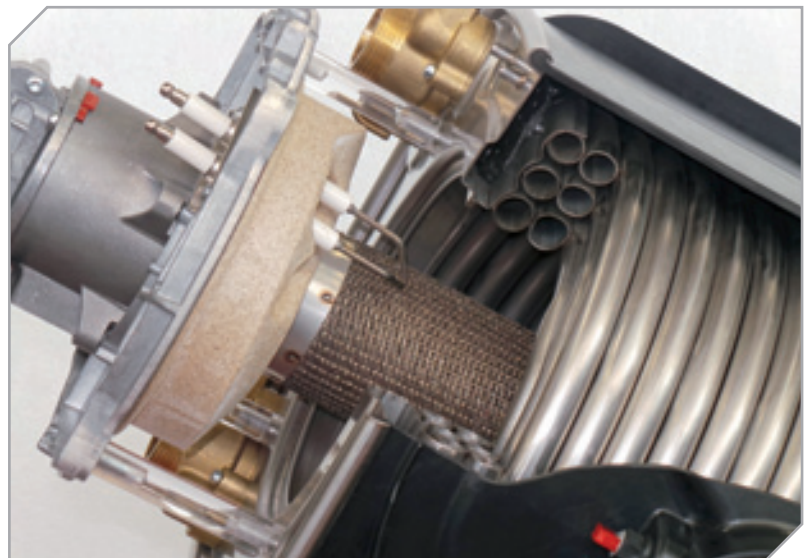
- Fecralloy fibre premix burner
- Reduced gas emissions in the atmosphere  
CO<15 ppm and NOx<15 ppm



# 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 **MYdens T** boiler, is the result of research and intensive testing together with Cosmogas experience that, for about 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 constructed **without weld joints** to keep stainless steel characteristics unaltered and to grant the highest resistance against corrosion. The whole unit is housed inside a resistant self-supporting case, made of insulated composite material, which ensures long life.
- **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 107%** with savings on heating up to 35 %.



### 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 reduce the risk of blockages and allow for:

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



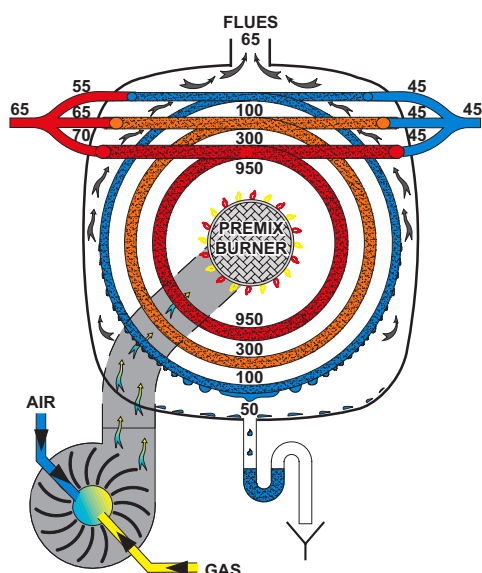




## R.V.C. RADIAL VARIABLE CIRCULATION

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, return water is distributed on Ø16 and Ø18 mm round tubes series.

The advantage of such a system is to condense with 55/56°C temperatures of the return water and to have excellent outputs of the boiler even in radiators systems.

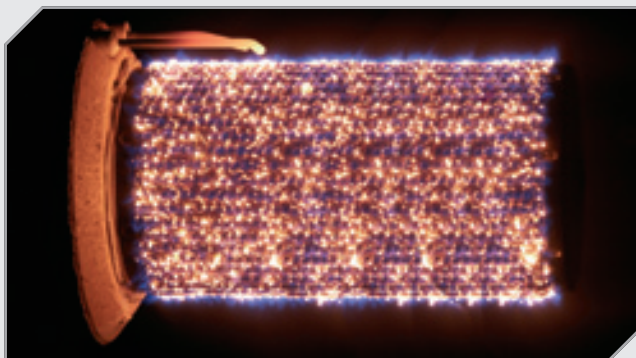


## COSMOMIX PATENTED PREMIX SYSTEM

The innovating premix and cascade sequence control system used in MYdens T boilers allows an exceptional turndown ratio from 1:20 (MYdens 280 T) to 1:160, in case of 8 MYdens 280 T boilers in cascade sequence.

### ADVANTAGES:

- Turndown ratio and cascade sequence control 1:20 (MYdens 280 T)
- Negative pressure gas valve
- It also operates with low gas inlet pressure up to 7,5 mbar
- Constant air/gas ratio



## ECOLOGIC PREMIX BURNER

Ecologic premix boilers have a constant air/gas ratio in each point of the turndown range of the burner, decreasing polluting emissions and optimizing efficiency. Cosmogas premix burner is made of “Fecralloy” a special metal fibre and has a round shape. The premix burner spreads short and perfectly nourished flames.

### ADVANTAGES:

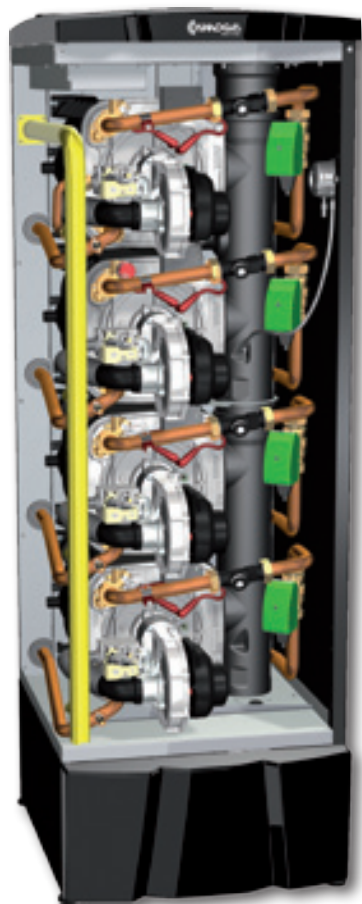
- High-efficiency combustion
- Low polluting emissions (CO=27 ppm - NOx=34 mg/kWh - MYdens 280 T)
- Natural gas and LP gas operating

# MODULATING AND EFFICIENT

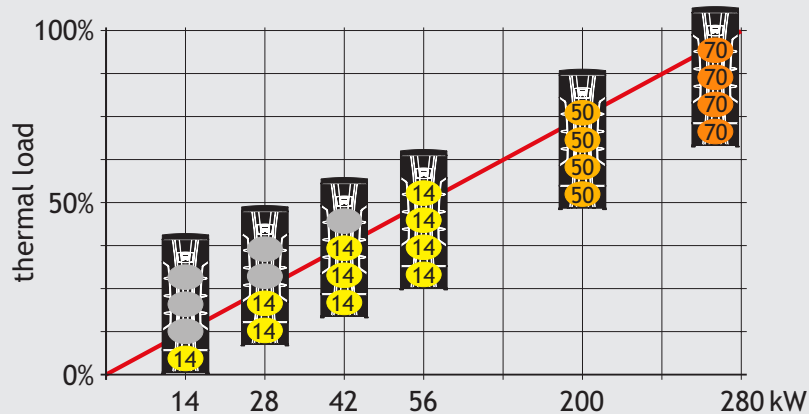
## COMFORT AND SAVINGS IN ANY SEASON

The increasing of thermal efficiency in new buildings has led to a sensible decreasing of boiler thermal output requests. **MYdens T**, thanks to the combination of the R.V.C. heat exchanger, modulating premix burner and COSMOMIX air/gas control

system, reaches a turndown ratio of 1:20 and consequently high seasonal efficiency and high gas savings even with radiator systems in old buildings.



### Continuous linear modulation according to real thermal need



14 = 1x14 kW - 28 = 2x14 kW - 42 = 3x14 kW - 56 = 4x14 kW

200 = 4x50 kW

280 = 4x70 kW

One of the main features of **MYdens T** is the heat exchangers and their perfect synchrony and cascade sequence control.

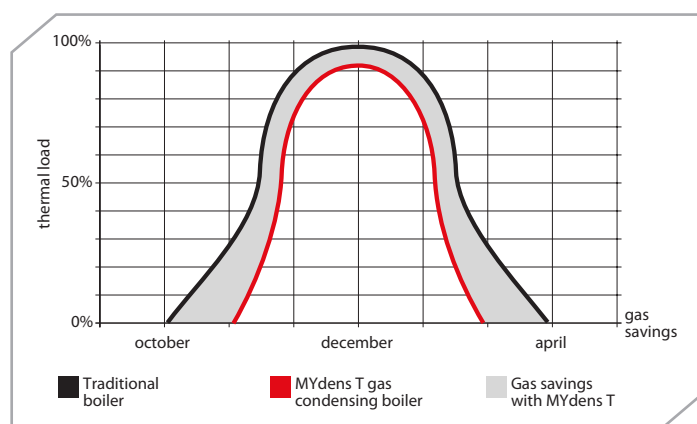
Once the system reaches full speed, when thermal load varies, burners reduce the power until they turn off one after another, then they eventually increase together to reach maximum output.

In this way it is possible to obtain maximum efficiency from each boiler to get seasonal high efficiency and great gas savings.



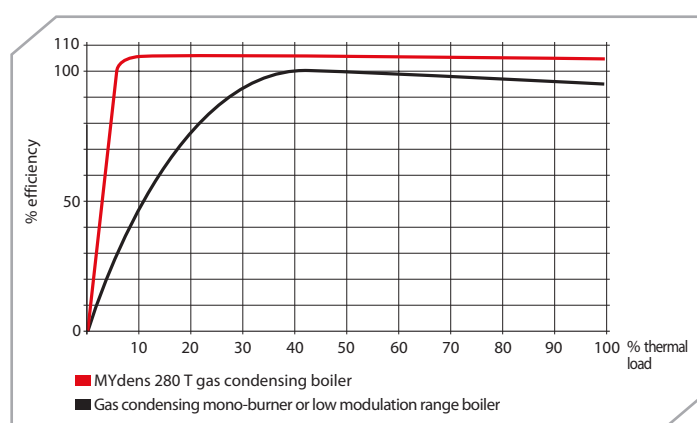
## GAS SAVINGS UP TO 35% COMPARED TO A TRADITIONAL BOILER

The diagram shows the gas savings comparison between an old traditional boiler and **MYdens T**, based upon the thermal load. Ideally the gray space represents achievable gas savings that can even reach 35% on the heating of a season from October to April. With **MYdens T** it is possible to save on bills because it keeps high efficiency in mid-seasons, that represent the longest and most important energetic period on the heating of a season.



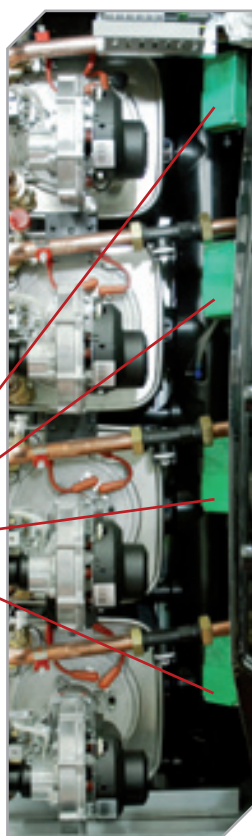
## HIGH EFFICIENCY EVEN AT LOW THERMAL LOADS

**MYdens T** has a high turndown ratio 1:20 (from 280 to 14 kW) and it always gives maximum efficiency even when at low thermal loads: it adjusts its heat input when thermal load decreases by turning off burners one by one, the last one supplies a 14 kW minimum power (5% of total) with a 107% output to the advantage of efficiency and gas savings.

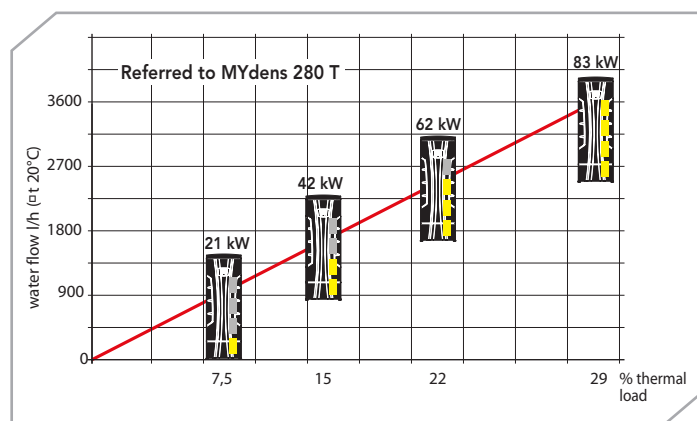


## 2-WAY MOTORISED VALVES FOR SMALL FLOWS AND FURTHER ENERGY SAVINGS

**MYdens T** can be equipped, on demand, with 2-way motorised valves, important to adjust the water flow to lowest thermal loads. The option of 2-way motorised valves combined with a variable speed pump allows further reductions of power and gas consumption.



**2-WAY MOTORISED VALVES** allow to maintain very high performances also with the **small flows** of the system



## MULTI-BURNER MONOBLOCK MANY BOILERS IN ONE

Compared to a same output boiler, **MYdens T** guarantees:

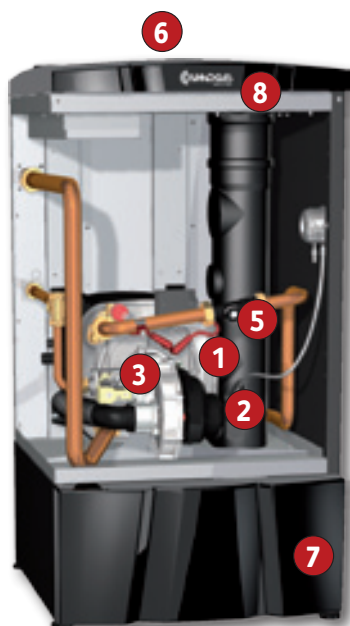
- Very high efficiency by optimising the output supplied according to real needs.
- Higher reliability, since the eventual stop of one or more unit will not compromise the functionality of the system allowing continuous operation.

## RANGE FROM 60 TO 280 kW

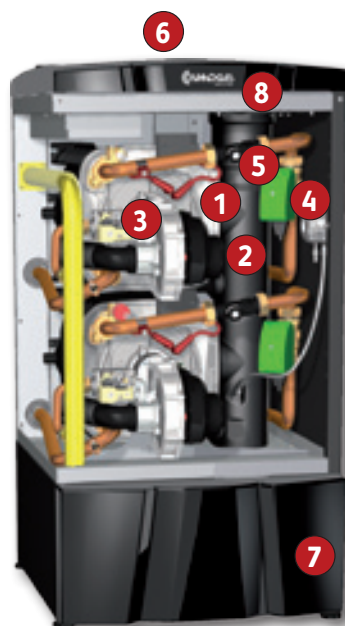
### THE SOLUTION FOR ANY TYPE OF INSTALLATION

Performance and dimension of **MYdens T** and a wide range of powers make it one of the best gas condensing boilers to use in any heating system installation: radiators, radiant panels, fan-coils and

to install in any thermal power plant in: new and renewed buildings, houses, hotels, schools, factories, etc...



■ **MYdens 60 T - 70 T**

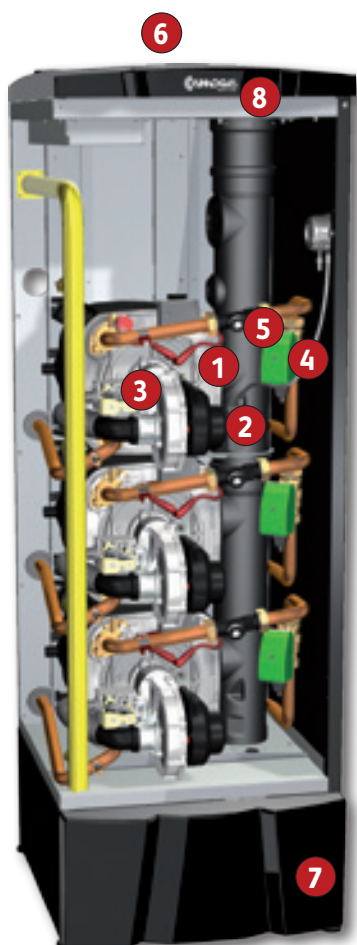


■ **MYdens 100 T - 115 T - 140 T**

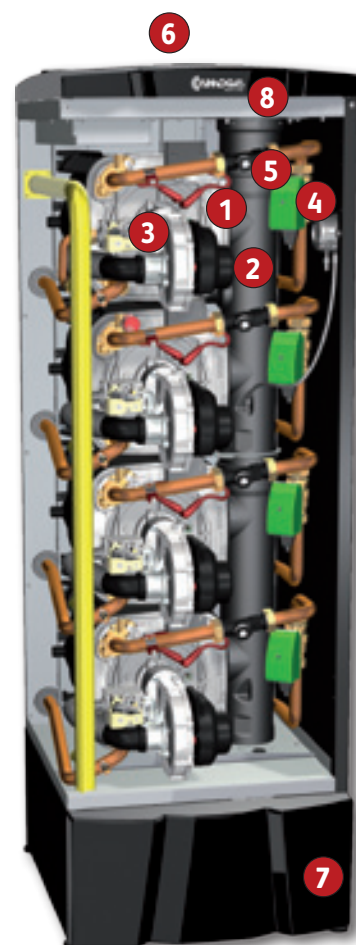
- ① Patented 70 kW AISI 316 Ti stainless steel R.V.C. heat exchanger, large water flow and no clogging
- ② Total fan modulation

- ③ Metal fibre premix burner: daily rotation for uniform operating
- ④ 2-way motorised valve, better efficiency at low thermal loads (optional)





■ MYdens 180 T - 210 T



■ MYdens 280 T

- 5 Water flow meter, shows real flow rate
- 6 Flue gas outlet/air intake connections of the sealed combustion circuit
- 7 Condensate acidity neutraliser case

- 8 Electric supply panel, connection to sensors: manifold, outdoor, hot water tank, safety kit, 0-10V input for modulation through thermoregulator; MODBUS connections

## STANDARD DETAILS THAT MAKE THE DIFFERENCE

### STANDARD CONDENSATE ACIDITY NEUTRALISER

Condensing water produced during the combustion process react to combustion products turning into acid water. To put down acidity, each **MYdens T** boiler is

standard equipped with a condensate acidity neutraliser, 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 allows it to flow freely to the drain. The blocked drain switch, within the condensate cup, cuts off the boiler

if the level of condensate exceeds the permitted limit.



### STANDARD WATER FLOW METER

Each heat exchanger inside **MYdens 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

**MYdens 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.

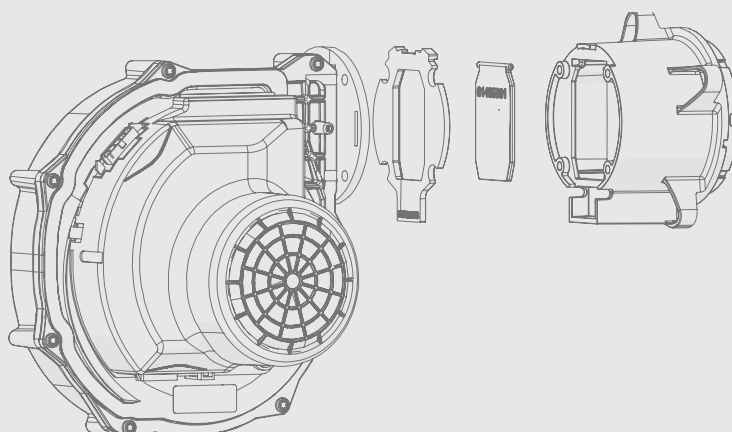


### BUILT-IN BACK FLUE PREVENTER (CLAPET)

Each burner, inside **MYdens T**, is equipped as standard with a back flue preventer, on the combustion circuit, to prevent the possible flue gas recirculation among different exchangers.

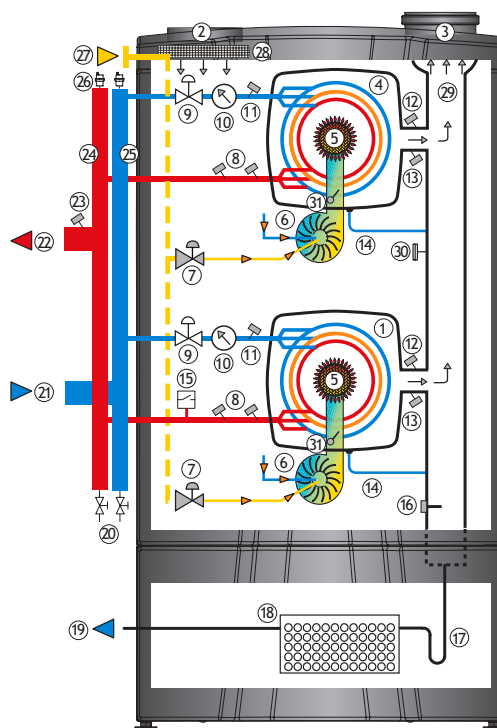
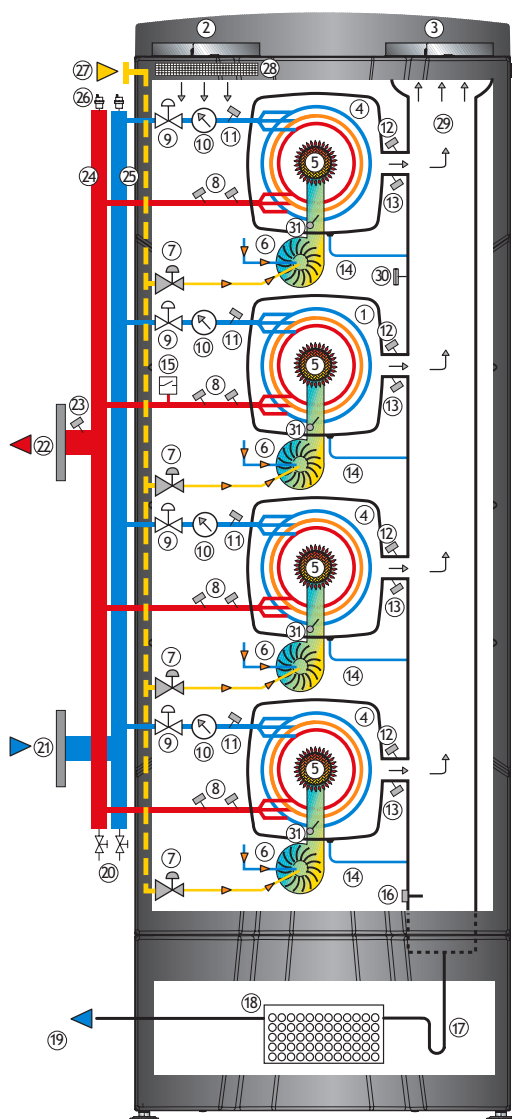
Each back flue preventer is equipped with a safety sensor.

If only one valve remains open **MYdens T** would signal the alarm by displaying the fault.





## OPERATING SCHEMES



- 1 - Manager thermal unit
- 2 - Air intake
- 3 - Flue gas outlet
- 4 - Dependent thermal unit
- 5 - Ferralloy metal fibre premix burner
- 6 - Fan
- 7 - Gas valve
- 8 - High limit supply temperature switch
- 9 - 2-way motorised valve
- 10 - Water flow meter
- 11 - Heating return temperature sensor
- 12 - Flue gas temperature sensor
- 13 - High limit flue gas temperature switch
- 14 - Thermal unit condensate drain
- 15 - Water pressure sensor
- 16 - Blocked drain switch
- 17 - Condensate drain siphon
- 18 - Condensate acidity neutraliser
- 19 - Condensate drain
- 20 - Drain cock
- 21 - Heating return
- 22 - Heating supply
- 23 - System temperature sensor
- 24 - Heating supply manifold
- 25 - Heating return manifold
- 26 - Automatic air vent cock
- 27 - Gas inlet
- 28 - Air filter
- 29 - Flue gas outlet pipe
- 30 - Blocked flue pressure switch
- 31 - Back flue preventer

## SAME SPARE PARTS

Spare parts are the same for the whole power range of **MYdens T** boilers. 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

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

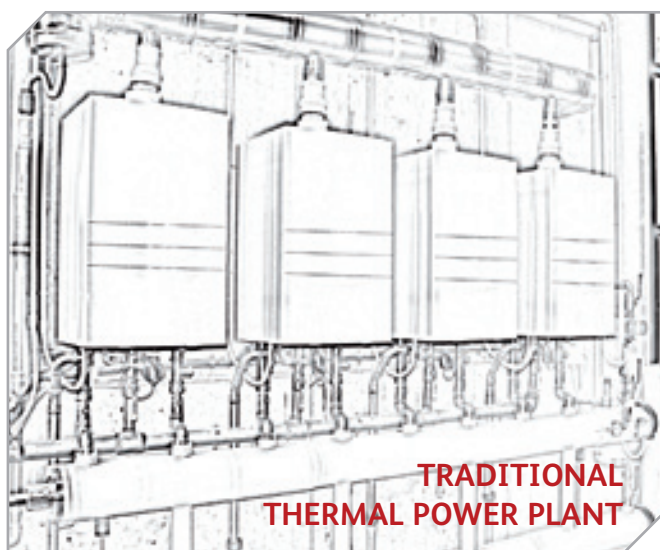
**MYdens T** is characterised by uniformity of functions and components, for a quick maintenance and management savings.





## ENERGY EFFICIENCY

### SUITABLE FOR NEW AND RENEWAL OF THERMAL POWER PLANTS



### COVER-BOX T SAFE AGAINST BAD WEATHER

**MYdens T** is available for use outdoors with the additional **COVER-BOX T** and **SERVICE BOX T** to house the additional components of safety kit, header and pump. CE certified, fireproof, weather resistant cover made of anodised aluminium that provides an IP X5D electric protection degree. Its reduced size and elegant design make its placement easy. Remote control is possible using the 885IF 0-10V interface.



### ADJUSTABLE FEET FOR CORRECT ALIGNMENT

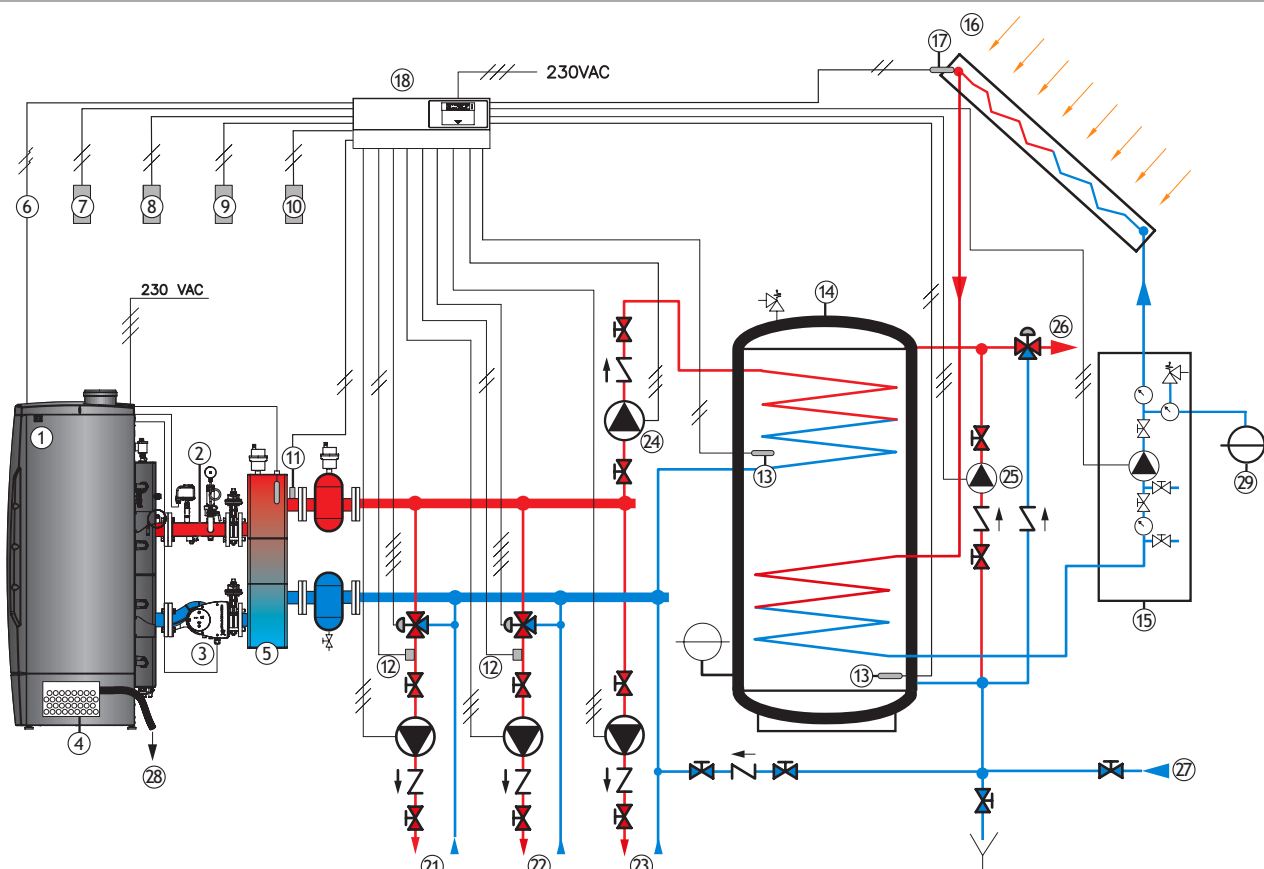
**MYdens T** is equipped with a series of adjustable feet for correct alignment of the boiler. The height of the feet varies from 0 to 10 mm.





## POSSIBLE ARRANGEMENT

### POSSIBLE ARRANGEMENT WITH THERMOREGULATOR



- 1 - MYdens T boiler
- 2 - Safety kit
- 3 - Primary circuit pump
- 4 - Condensate acidity neutraliser
- 5 - Hydraulic separator
- 6 - 0-10V input
- 7 - Outdoor temperature sensor
- 8 - Room thermostat mix heating circuit No. 1
- 9 - Room thermostat mix heating circuit No. 2
- 10 - Room thermostat direct heating circuit No. 3

- 11 - Hydraulic separator temperature sensor
- 12 - Mix circuit temperature sensor
- 13 - Hot water tank temperature sensor
- 14 - BP series hot water tank
- 15 - Filling and safety group of the solar circuit
- 16 - Solar panel
- 17 - Solar panel temperature sensor
- 18 - Thermoregulator
- 21 - Mix heating circuit No. 1
- 22 - Mix heating circuit No. 2

- 23 - Direct heating circuit No. 3
- 24 - Hot water tank load pump
- 25 - Legionella disease disinfection pump
- 26 - Domestic hot water supply
- 27 - Cold water inlet
- 28 - Condensate drain
- 29 - Solar circuit expansion vessel

The examples reported are merely indicative

## IT GETS THROUGH A 65 cm WIDE DOOR

MYdens 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.



## EASY ELECTRIC CONNECTIONS

MYdens 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 (optional) interface set up that allows a 0-10V input, modbus connection, cascade connection and an alarm contact.



# EVERYTHING UNDER CONTROL

## STANDARD CONTROL DEVICE FOR PERFECT OPERATING OF THE INSTALLATION

The control board of the boiler allows the management of:

- Primary circuit pump
- Heating circuit pump
- Sanitary circuit pump

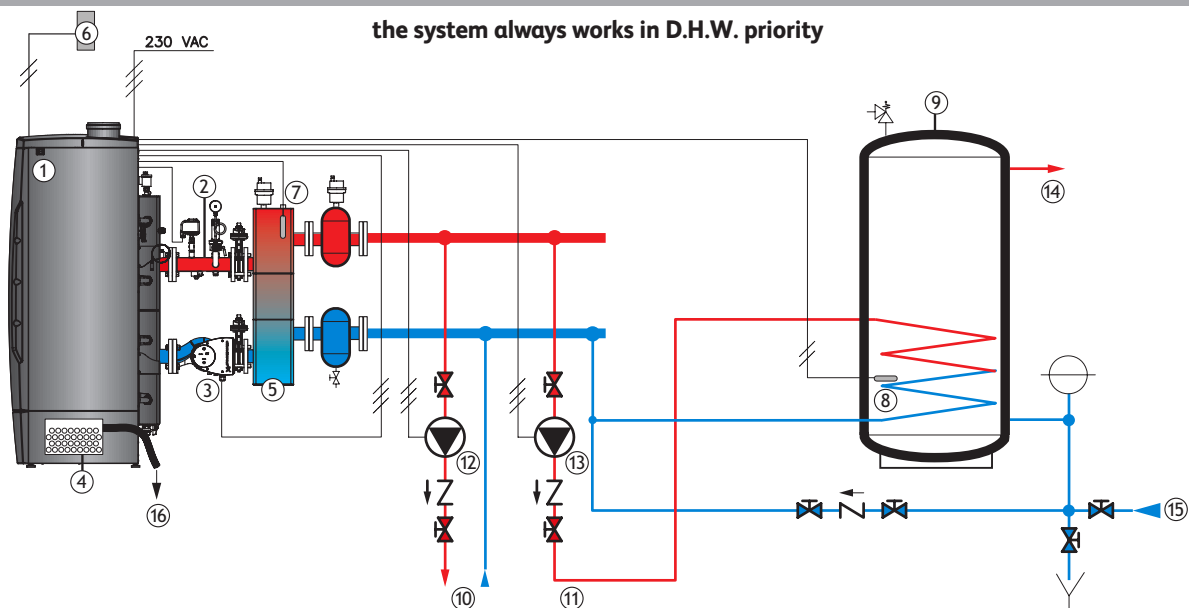
The control board also manages:

- Output right modulation
- Pump unlock system
- Antifreeze device

- Outdoor sensor connection
- Auto diagnostic of all components and function: visualisation of errors and lockouts, temperature sensors, ionisation current, fan rotation speed, water flow rate, water pressure
- Low water flow protection
- Low water pressure protection
- Flue blocked pressure switch
- Condensate blocked drain switch

### STANDARD CONTROL DEVICE

the system always works in D.H.W. priority



- 1 - MYdens T boiler
- 2 - Safety kit
- 3 - Primary circuit pump
- 4 - Condensate acidity neutraliser
- 5 - Hydraulic separator
- 6 - Outdoor temperature sensor

- 7 - Hydraulic separator temperature sensor
- 8 - Hot water tank temperature sensor
- 9 - Hot water tank
- 10 - Heating circuit
- 11 - Hot water tank circuit
- 12 - Heating circuit pump

- 13 - Hot water tank circuit pump
- 14 - Domestic hot water supply
- 15 - Cold water inlet
- 16 - Condensate drain

The examples reported are merely indicative



## TUTORBIT: THERMOREGULATOR FOR REMOTE CONTROL AND CASCADE SEQUENCE MANAGEMENT

### CASCADE SEQUENCE CONTROL –

**TUTORbit** regulates the operating of up to 4 **MYdens T** boilers in cascade sequence, managing a sequenced lighting and modulating from the lowest output of one single boiler to the highest output of 4 boilers working at full speed, guaranteeing the rotation for equal wear and tear.

### MULTI CIRCUIT HEATING

**ADJUSTMENT – TUTORbit** gives the opportunity of controlling 3 separate circuit each one independent from the others.

- 2 heating circuits with the temperature controlled by a 3-way mixing valve
- circuit for domestic hot water production.
- Anti-freeze function.

**SANITARY ADJUSTMENT –** In sanitary mode, **TUTORbit** gives the opportunity to:

- Set 2 operating modes (water storage tank sensor and water storage tank thermostat)
- Manage the anti-legionella function
- Minimum and maximum storage temperature
- DHW circulating pump.

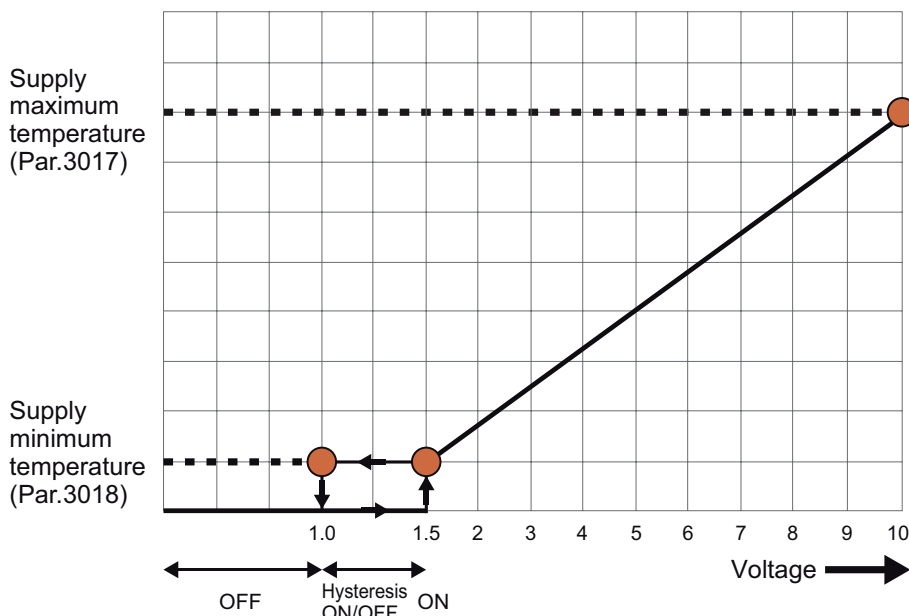
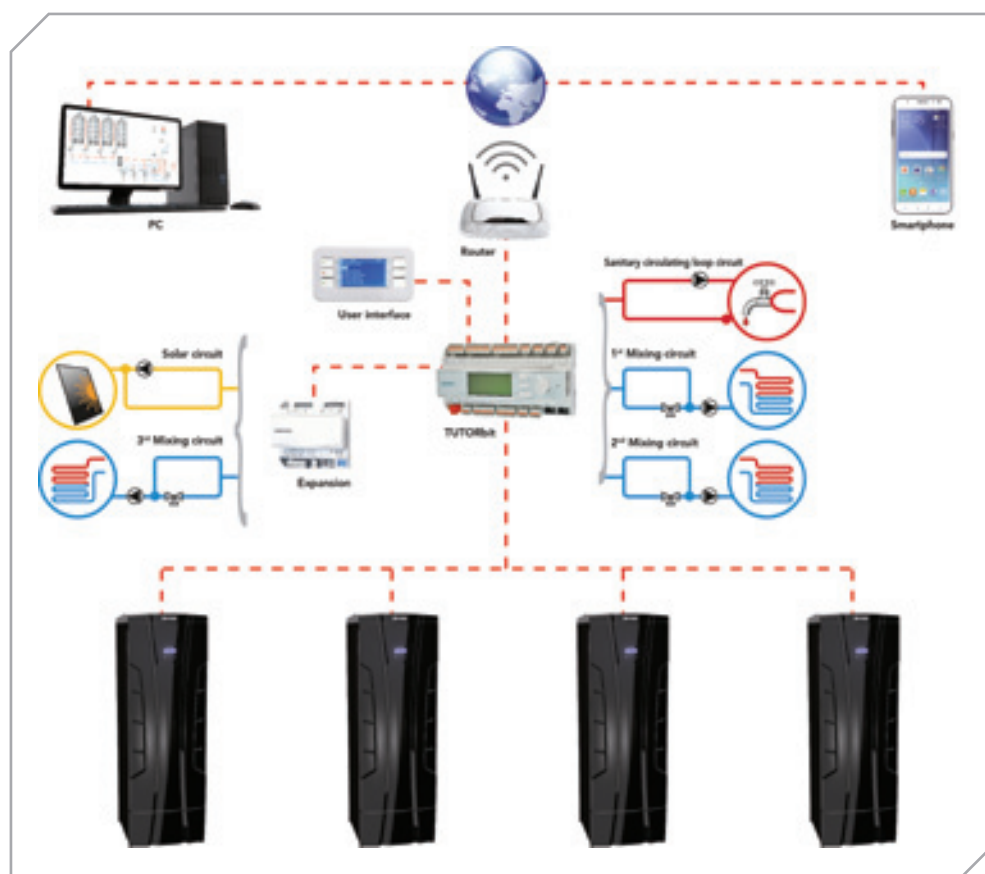
**SOLAR ADJUSTMENT -TUTORbit** can even manage simultaneously a solar circuit with the possibility to set the following parameters:

- Minimum and maximum storage temperature
- Solar panel temperature
- Water storage tank load pump  $\Delta t$  function
- Anti-stagnation function
- Anti-freeze function
- Heat transferring pump/anti-legionella

### WEB-BASED REMOTE SERVICE

**SYSTEM – TUTORbit** is compatible with main browsers and allows cloud remote control of the system via PC, tablet and smartphone, offering the following possibilities:

- Management of user-customised settings
- Forcing of inputs and outputs
- Alarms visualisation
- Control input from 0-10V signal
- Monitoring through the synoptic panel of parameters and operating temperatures.
- The expansion for the control of other circuits is available.



## STANDARD TEMPERATURE SENSORS

**MYdens T** boilers are supplied as standard with:

- storage tank temperature sensor
- outdoor sensor

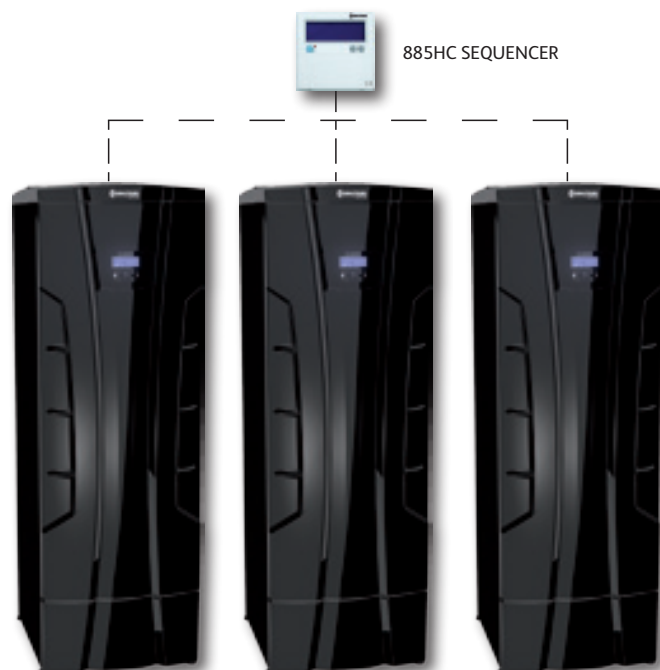
## CONTROL VIA ANALOG SIGNAL 0-10V

The graph shows the reaction of the boiler when the voltage is varied. Beyond 1.5V the boiler activates and adapts its power proportionally to the input voltage. The value is adjusted in a proportional way to set supply temperature.

# HEAT OUTPUT UP TO 2240 kW

## MYdens T CASCADE SEQUENCE

- **UP TO 8 MYDENS 280 T** - MYdens 280 T boilers can be connected in cascade sequence up to 8 units to achieve a maximum power of 2240 kW. One unit operates as "Manager" and the other as "Dependents" modulating to get the requested output.
- **MINIMUM GROUND SPACE** - MYdens 280 T boilers can be connected to each other in cascade sequence with a minimum distance of 10 cm. They have been designed to have access to both front and rear side, to facilitate any type of maintenance.
- **TURNDOWN RATIO UP TO 1:160** - Cascade sequence is recommended in all installations where it is necessary to ensure continuity of operation and where it is necessary to get high output for starting and low output for operation.



## SAFETY KIT

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



## CASCADE SEQUENCE CONTROL

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

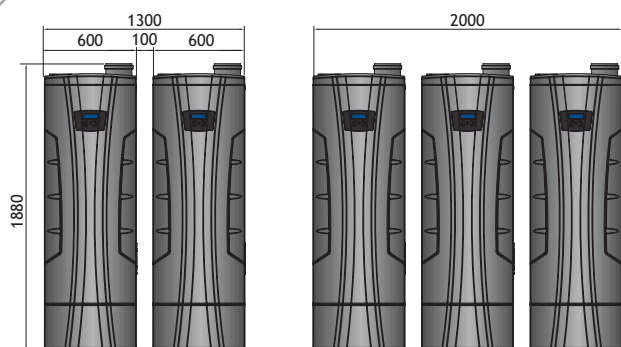
**Each boiler must be equipped with a 885IF interface.**

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

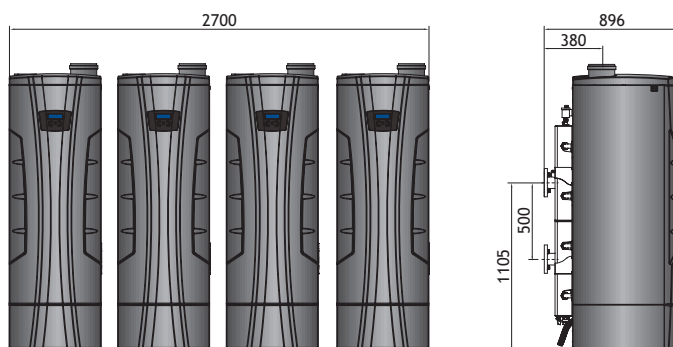




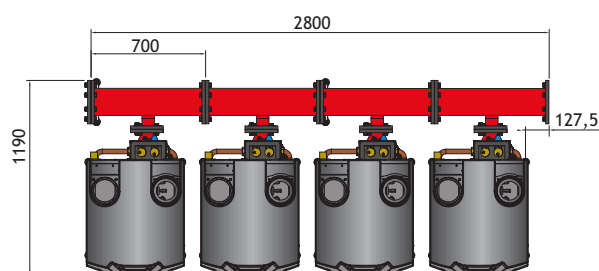
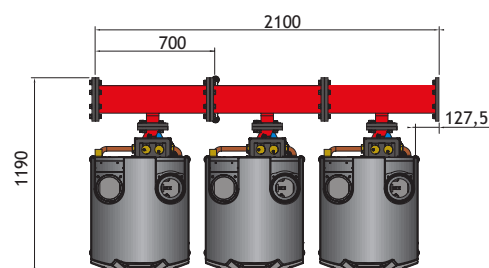
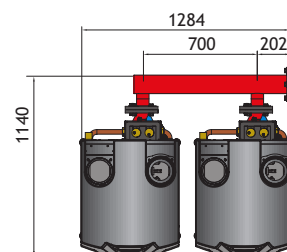
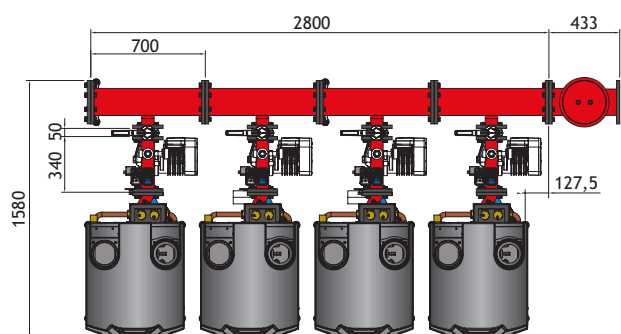
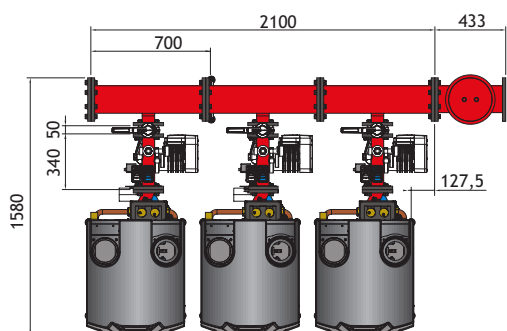
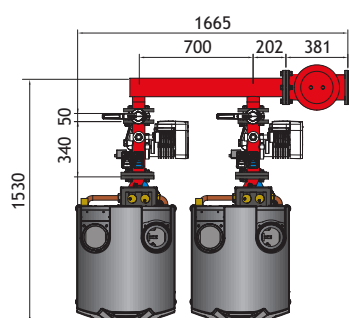
## CASCADE SEQUENCE POSSIBLE ARRANGEMENTS



UPPER VIEW WITH ACCESSORIES



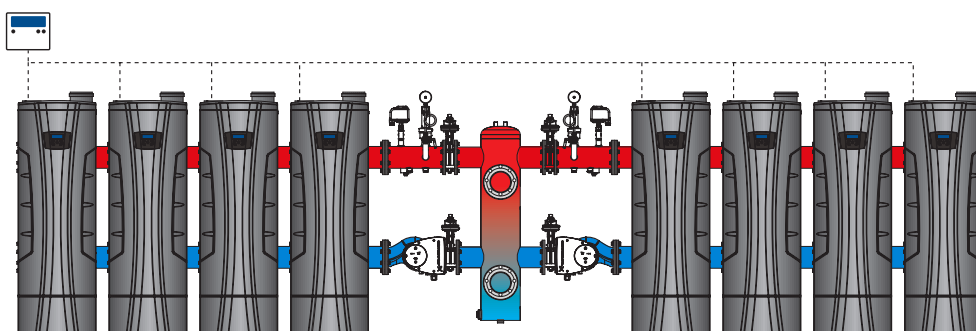
UPPER VIEW WITHOUT ACCESSORIES



The examples reported are merely indicative

## 2240 kW THERMAL POWER PLANT

885HC control board manages the rotation and the sequence up to 8 MYdens 280 T boilers in cascade sequence, divided into two blocks of 4 units, individually managed through two safety kits, to reach 2240 kW total output.



## WIDE RANGE OF ACCESSORIES ON DEMAND

Each **MYdens T** gas condensing boiler can be equipped with one or more of the following accessories on demand:

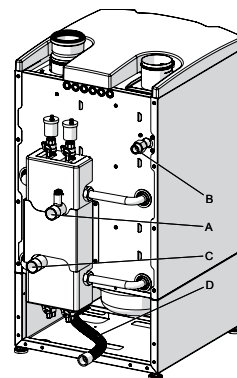
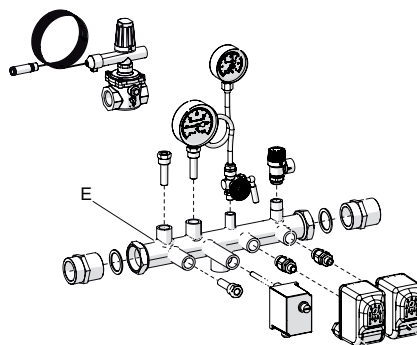
- Safety kit complete with shut-off gas valve
- Variable inverter pump

- Plate heat exchanger or hydraulic separator, complete with flanged elbows for positioning
- polypropylene flue gas outlets

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



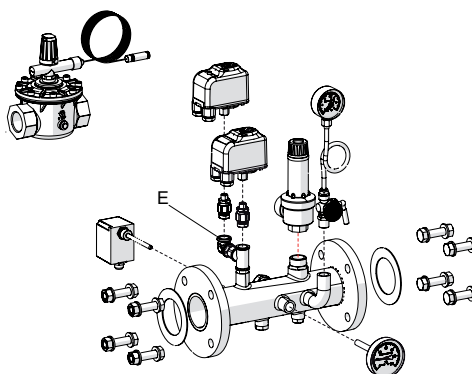
- A- Heating supply 1"1/2
- B- Gas inlet 1"
- C- Heating return 1"1/2
- D- Condensate drain pipe Ø32 mm
- E- Safety kit complete with shut-off valve



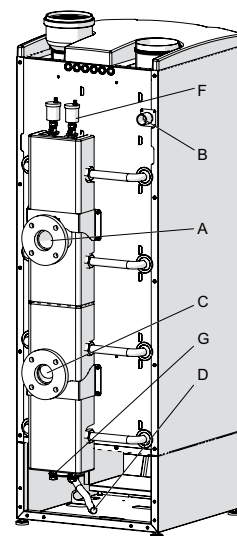
### SAFETY KIT COMPLETE WITH SAFETY DEVICES UP TO 280 kW



- A- Heating supply DN 65 PN 16
- B- Gas inlet 1"1/4
- C- Heating return DN 65 PN 16
- D- Condensate drain pipe Ø32 mm

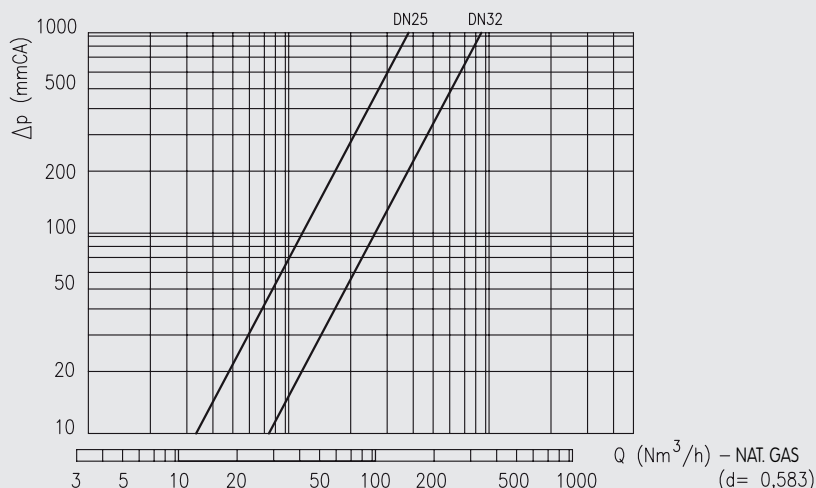


- E- Safety kit complete with shut-off valve
- F- Purge valves
- G- Safety relief valves



### SHUT-OFF GAS VALVE (VIC) PRESSURE DROPS

Safety kits supplied by Cosmogas include as standard: manifold complete with connections, high and low pressure switches, safety relief valve, high limit temperature switch, thermometer, thermometer test connection, pressure gauge, faucet test and shut-off gas valve (VIC), brand Watts, DN 25 and DN 32. The chart shows related pressure drops.





## ERP PRODUCT DATA

Name or brand of the supplier			COSMOGAS							
Reference of the model given by the supplier			MYDENS							
			60 T	70 T	100 T	115 T	140 T	180 T	210 T	280 T
Condensing boiler			YES	YES	YES	YES	YES	YES	YES	YES
Low temperature boiler			NO	NO	NO	NO	NO	NO	NO	NO
B1 Boiler type			NO	NO	NO	NO	NO	NO	NO	NO
Cogeneration space heater			NO	NO	NO	NO	NO	NO	NO	NO
Combination heater			NO	NO	NO	NO	NO	NO	NO	NO
Equipped with supplementary heater			NO	NO	NO	NO	NO	NO	NO	NO
Energy efficiency class			A	A	-	-	-	-	-	-
Item	Symbol	Unit								
Rated heat output	P <sub>n</sub>	kW	55,8	67,9	95,6	111,7	135,8	168,2	203,7	271,6
Seasonal space heating energy efficiency	η <sub>s</sub>	%	90,5	90,8	90,7	90,8	91,0	91,0	91,1	91,1
Useful heat output at rated heat output and high-temperature regime (*)	P <sub>4</sub>	kW	55,8	67,9	95,6	111,7	135,8	168,2	203,7	271,6
Useful efficiency at rated heat output and high-temperature regime (*)	η <sub>4</sub>	%	87,2	87,3	87,2	87,2	87,3	87,3	87,3	87,3
Useful heat output at 30 % of rated heat output and low-temperature regime (**)	P <sub>1</sub>	kW	18,6	22,6	31,9	37,2	45,3	56,1	67,9	90,5
Useful efficiency at 30 % of rated heat output and low-temperature regime (**)	η <sub>1</sub>	%	95,7	95,8	95,8	95,8	95,8	95,8	95,8	95,8
<b>Auxiliary electricity consumption</b>										
At full load	el <sub>max</sub>	kW	0,14	0,14	0,28	0,28	0,28	0,42	0,42	0,56
At partial load	el <sub>min</sub>	kW	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06
In standby mode	P <sub>sb</sub>	kW	0,005	0,005	0,01	0,01	0,01	0,015	0,015	0,02
<b>Other items</b>										
Standby heat loss	P <sub>stby</sub>	kW	0,1	0,1	0,2	0,2	0,2	0,3	0,3	0,4
Ignition burner power consumption	P <sub>ign</sub>	kW	0	0	0	0	0	0	0	0
Annual energy consumption	Q <sub>HE</sub>	GJ	104	130	169	195	237	288	345	452
Sound power level, indoors	L <sub>WA</sub>	dB	70	70	70	70	70	70	70	70
Emissions of nitrogen oxides	NO <sub>x</sub>	mg/kWh	34	34	34	34	34	34	34	34

According commission delegated regulation (EU) No 811/2013 and No 813/2013.

(\*) High-temperature regime means 60°C return temperature and 80°C supply temperature.

(\*\*) Low temperature means for condensing boilers 30°C, for low-temperature boilers 37°C and for other appliances 50°C return temperature.

## VARIABLE CIRCULATION MODULATING PUMP

MYdens T advanced electronics allow the boiler to directly manage the inverter pump of the primary circuit (available on demand) which, combined with 2-way motorised valves, guarantees the perfect balance between heat output and heat input, maximising gas condensing.



## SIMPLE AND INTUITIVE CONTROL PANEL

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



# TECHNICAL DATA

MYDENS			UM	60 T	70 T	100 T	115 T
Type (Type of flue gas exhaust/air intake)							
Category				II2H3P	II2H3P	II2H3P	II2H3P
EU type approval certificate (PIN)				0476CR1272	0476CR1272	0476CR1272	0476CR1272
Range Rated Boiler				APPROVED	APPROVED	APPROVED	APPROVED
Heating maximum heat input "Qn" PCI (PCS)			kW	57,8 (64,2)	69,9 (77,6)	99,0 (109,9)	115,6 (128,3)
Heating minimum heat input PCI (PCS)			kW	12,0 (13,3)	14,7 (16,3)	12,0 (13,3)	12,0 (13,3)
Heating maximum heat output (80/60) "Pn"			kW	55,8	67,8	95,6	111,7
Efficiency at 100 % load (80/60) PCI (PCS)			%	96,6 (87,0)	97,0 (87,4)	96,6 (87,0)	96,6 (87,0)
Minimum heat output (80/60)			kW	11,5	14,1	11,5	11,5
Efficiency at minimum heat output (80/60)			%	95,9 (86,4)	96,2 (86,7)	95,9 (86,4)	95,9 (86,4)
Heating maximum heat output (50/30)			kW	60,7	73,5	104,0	121,4
Efficiency at heating maximum heat output (50/30) PCI (PCS)			%	105,0 (94,6)	105,1 (94,7)	105,0 (94,6)	105,0 (94,6)
Minimum heat output (50/30)			kW	12,8	15,6	12,8	12,8
Efficiency at minimum heat output (50/30) PCI (PCS)			%	106,6 (96,0)	106,3 (95,8)	106,6 (96,0)	106,6 (96,0)
Efficiency at 30 % of the load PCI (PCS)			%	106,3 (95,8)	106,4 (95,9)	106,3 (95,8)	106,3 (95,8)
Losses at the chimney, burner ON (80/60)			%	1	1	1	1
Losses at the chimney, burner OFF			%	0,1	0,1	0,1	0,1
Losses at the casing, burner ON			%	0,1	0,1	0,1	0,1
Losses at the casing, burner OFF			%	0,05	0,05	0,05	0,05
Gas flow rate	G20	m³/h		6,11	7,39	10,47	12,22
	G25	m³/h		7,11	8,60	12,17	14,22
	G30	kg/h		4,55	5,51	7,80	9,11
	G31	kg/h		4,49	5,43	7,68	8,97
	G20	mbar		20	20	20	20
Gas supply pressure	G25	mbar		25	25	25	25
	G30	mbar		30	30	30	30
	G31	mbar		37	37	37	37
Gas supply minimum pressure	G20	mbar		17	17	17	17
	G25	mbar		20	20	20	20
	G30	mbar		25	25	25	25
	G31	mbar		25	25	25	25
	G20	mbar		25	25	25	25
Gas supply maximum pressure	G25	mbar		30	30	30	30
	G30	mbar		35	35	35	35
	G31	mbar		45	45	45	45
	G31	mbar		45	45	45	45
Primary heat exchanger water content			l	4,6	5,7	9,2	9,2
Minimum operating water flow rate with motorised valves			l/h	/	/	2400	2400
Minimum operating water flow rate without motorised valves			l/h	2400	2700	4800	4800
DHW adjustment range with storage tank			°C	40 - 60	40 - 60	40 - 60	40 - 60
Maximum temperature for safety intervention			°C	95	95	95	95
Minimum/Maximum heating temperature			°C	20 / 80	20 / 80	20 / 80	20 / 80
Maximum heating pressure "PMS"			bar	11	11	11	11
Minimum heating pressure			bar	1	1	1	1
Rated power supply voltage			V ~	230	230	230	230
Rated power supply frequency			Hz	50	50	50	50
Absorbed electrical power			W	110	150	220	220
Electrical protection rating				IP 20	IP 20	IP 20	IP 20
Burner electrical power			W	110	150	220	220
Air intake and flue gas exhaust pipe diameter (split)			mm	110	110	110	110
Max. length of air intake and flue gas exhaust pipe (split)			m	10 / 10	10 / 10	10 / 10	10 / 10
Equivalent length of a bend			m	4	4	4	4
Weighted CO (0 % O2)			G20 ppm	30	27	30	30
Weighted NOx (0 % O2) (class 6 EN 15502) PCS			G20 mg/kWh	34	34	34	34
CO2 ( %) at minimum/maximum power	G20	%		8,5 / 8,7	8,5 / 8,7	8,5 / 8,7	8,5 / 8,7
	G25	%		8,4 / 8,8	8,4 / 8,8	8,4 / 8,8	8,4 / 8,8
	G30	%		9,9 / 10,6	9,9 / 10,6	9,9 / 10,6	9,9 / 10,6
	G31	%		9,8 / 10,2	9,8 / 10,2	9,8 / 10,2	9,8 / 10,2



## TENDERING SPECIFICATIONS

140 T	180 T	210 T	280 T
B23 ; B23P			
II2H3P	II2H3P	II2H3P	II2H3P
0476CR1272	0476CR1272	0476CR1272	0476CR1272
APPROVED	APPROVED	APPROVED	APPROVED
140,0 (155,4)	173,4 (192,5)	210,0 (233,1)	280,0 (310,8)
14,7 (16,3)	14,7 (16,3)	14,7 (16,3)	14,7 (16,3)
135,8	168,2	203,7	271,6
97,0 (87,4)	97,0 (87,4)	97,0 (87,4)	97,0 (87,4)
14,1	14,1	14,1	14,1
96,2 (86,7)	96,2 (86,7)	96,2 (86,7)	96,2 (86,7)
147,1	182,2	220,7	294,3
105,1 (94,7)	105,1 (94,7)	105,1 (94,7)	105,1 (94,7)
15,6	15,6	15,6	15,6
106,3 (95,8)	106,3 (95,8)	106,3 (95,8)	106,3 (95,8)
106,4 (95,9)	106,4 (95,9)	106,4 (95,9)	106,4 (95,9)
1	1	1	1
0,1	0,1	0,1	0,1
0,1	0,1	0,1	0,1
0,05	0,05	0,05	0,05
14,80	18,30	22,20	29,61
17,22	21,32	25,83	34,43
11,03	13,66	16,55	22,06
10,87	13,50	16,30	21,73
20	20	20	20
25	25	25	25
30	30	30	30
37	37	37	37
17	17	17	17
20	20	20	20
25	25	25	25
25	25	25	25
25	25	25	25
30	30	30	30
35	35	35	35
45	45	45	45
11,4	17,1	17,1	22,8
2700	2700	2700	2700
5400	8100	10800	10800
40 - 60	40 - 60	40 - 60	40 - 60
95	95	95	95
20 / 80	20 / 80	20 / 80	20 / 80
11	11	11	11
1	1	1	1
230	230	230	230
50	50	50	50
300	430	430	590
IP 20	IP 20	IP 20	IP 20
300	430	430	590
110	160	160	160
10 / 10	10 / 10	10 / 10	10 / 10
4	4	4	4
27	27	27	27
34	34	34	34
8,5 / 8,7	8,5 / 8,7	8,5 / 8,7	8,5 / 8,7
8,4 / 8,8	8,4 / 8,8	8,4 / 8,8	8,4 / 8,8
9,9 / 10,6	9,9 / 10,6	9,9 / 10,6	9,9 / 10,6
9,8 / 10,2	9,8 / 10,2	9,8 / 10,2	9,8 / 10,2

### MYdens T

Modular, heat only, gas condensing boiler for indoor installation

- Type COSMOGAS MYDENS \_\_\_\_\_ T
- Vertical boiler height \_\_\_\_\_ mm
- floor dimensions 600 x 700 mm.
- Maximum heat output (80/60) "Pn" \_\_\_\_\_ kW
- Maximum heat output (50/30) \_\_\_\_\_ kW
- Minimum heat output (80/60) \_\_\_\_\_ kW
- Minimum heat output (50/30) \_\_\_\_\_ kW
- Maximum heat input "Qn" PCI (PCS) \_\_\_\_\_ kW
- Minimum heat input PCI (PCS) \_\_\_\_\_ kW
- Efficiency at 100 % load (80/60) PCI (PCS) \_\_\_\_\_ %
- Efficiency at maximum heat output (50/30) PCI (PCS) \_\_\_\_\_ %
- Efficiency at minimum heat output (80/60) PCI (PCS) \_\_\_\_\_ %
- Efficiency at minimum heat output (50/30) PCI (PCS) \_\_\_\_\_ %
- Efficiency at 30 % partial load PCI (PCS) \_\_\_\_\_ %
- Turndown ratio 1: \_\_\_\_\_
- Certified efficiency (92/42 efficiency) \_\_\_\_\_ 4 stars
- Range Rated Certified to adjust heat output according to real maximum installation heat output
- 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
- According to class 6, most ecologic of UNI EN 15502 regulation
  - low nitrogen oxide emissions (NOx) = \_\_\_\_\_ mg/kWh
  - low carbon monoxide emissions (CO) = \_\_\_\_\_ 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
- Boiler water pressure switch
- Blocked flue pressure switch
- Water flow meter
- Drain valves
- Power supply = 230 V, 50 Hz
- Bipolar main power switch
- Electrical 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, boiler, 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)

### MYdens TV version:

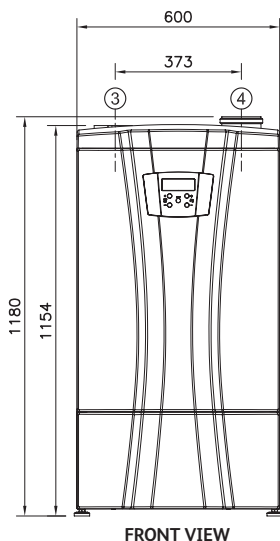
- 2-way motorised valves to adjust the water flow on each thermal element

## TECHNICAL DATA

MYDENS		UM	60 T	70 T	100 T	115 T
O <sub>2</sub> (%) at minimum/maximum power	G20	%	5,8 / 5,4	5,8 / 5,4	5,8 / 5,4	5,8 / 5,4
	G25	%	5,6 / 4,9	5,6 / 4,9	5,6 / 4,9	5,6 / 4,9
	G30	%	6,2 / 5,1	6,2 / 5,1	6,2 / 5,1	6,2 / 5,1
	G31	%	6,0 / 5,4	6,0 / 5,4	6,0 / 5,4	6,0 / 5,4
Maximum recirculation of flue gas permitted in windy conditions		%	10	10	10	10
Maximum flue gas temperature at boiler outlet		°C	80	80	80	80
Minimum flue gas temperature at boiler outlet		°C	30	30	30	30
Δt flue gas temperature/Return (at 100 % of the load) (80/60)		°C	20	24	20	20
Δt flue gas temperature/Return (at 30 % of the load) (37/30)		°C	7	7	7	7
Maximum CO in exhaust flue gas		ppm	250	250	250	250
Mass flow of flue gas at maximum power		g/s	27,1	32,9	46,6	54,4
Mass flow of flue gas at minimum power		g/s	5,8	7,1	5,8	5,8
Available head at outlet		Pa	110	110	110	110
Maximum temperature of the combustion agent air		°C	40	40	40	40
Maximum CO <sub>2</sub> content in the combustion agent air		%	0,9	0,9	0,9	0,9
Maximum flue gas temperature for overheating		°C	95	95	95	95
Max. negative pressure allowed in the flue gas exhaust/air intake system		Pa	110	110	110	110
Condensate maximum flow rate		l/h	7,3	8,8	12,4	14,5
Condensate average acidity		pH	4	4	4	4
Operating room temperature		°C	0,5 ; + 50	0,5 ; + 50	0,5 ; + 50	0,5 ; + 50
Boiler weight (empty)		kg	96	98	142	142

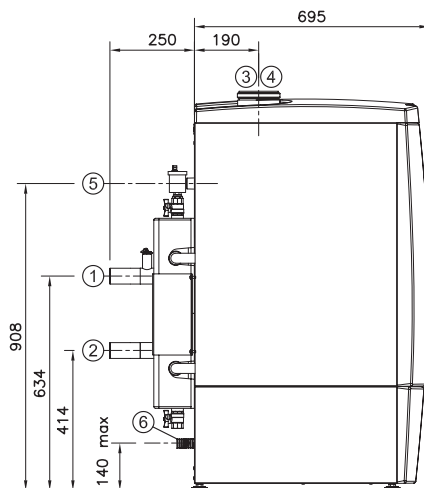
## SIZE AND CONNECTIONS

MYDENS 60 T - 70 T - 100 T - 115 T - 140 T



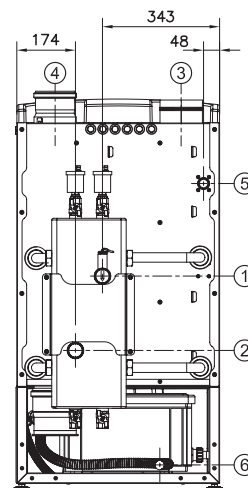
FRONT VIEW

- 1 - Supply 1" 1/2
- 2 - Return 1" 1/2
- 3 - Air intake



SIDE VIEW

- Ø80 for 60 T, 70 T models
- Ø110 for other models
- 4 - Flue gas outlet
- 5 - Gas inlet 1"



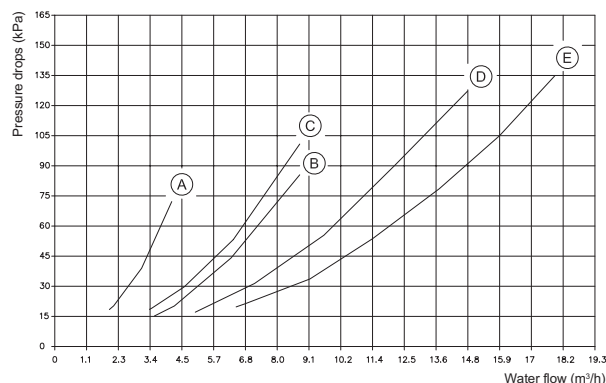
REAR VIEW

- 6 - Condensate drain Ø28 mm



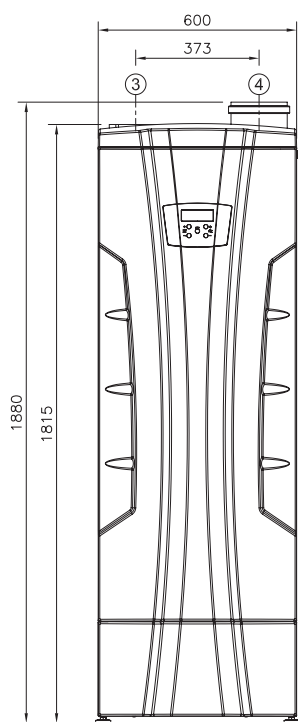
140 T	180 T	210 T	280 T
5,8 / 5,4	5,8 / 5,4	5,8 / 5,4	5,8 / 5,4
5,6 / 4,9	5,6 / 4,9	5,6 / 4,9	5,6 / 4,9
6,2 / 5,1	6,2 / 5,1	6,2 / 5,1	6,2 / 5,1
6,0 / 5,4	6,0 / 5,4	6,0 / 5,4	6,0 / 5,4
10	10	10	10
80	80	80	80
30	30	30	30
24	24	24	24
7	7	7	7
250	250	250	250
65,8	81,6	98,7	131,7
7,1	7,1	7,1	7,1
110	110	110	110
40	40	40	40
0,9	0,9	0,9	0,9
95	95	95	95
110	110	110	110
17,6	21,8	26,3	35,1
4	4	4	4
0,5 ; + 50	0,5 ; + 50	0,5 ; + 50	0,5 ; + 50
147	211	211	249

# WATER PRESSURE DROPS



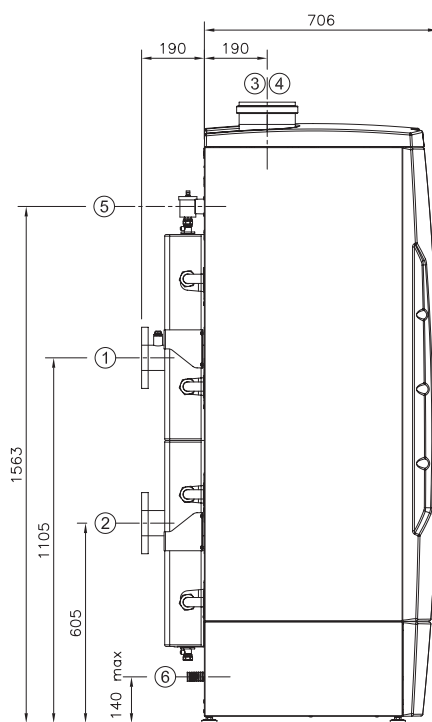
- (A) Models 60 T and 70 T
- (B) Models 100 T and 115 T
- (C) Models 140 T
- (D) Models 180 T and 210 T
- (E) Models 280 T

# MYDENS 180 T - 210 T - 280 T



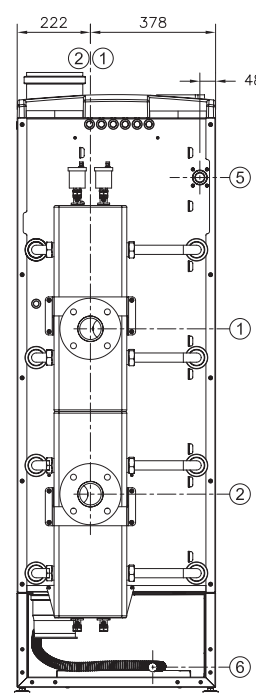
FRONT VIEW

- 1 - Supply DN 65, PN 16
- 2 - Return DN 65, PN 16



SIDE VIEW

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



REAR VIEW

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



## COSMOGAS International Certifications



Certified  
Quality  
System  
ISO 9001



EU



013  
Ukraine



Eurasian  
Union



USA



USA



Canada

**info@gemtex.co.uk**  
**www.gemtex.co.uk**

**Gemtex**

Unit 3 The Glenmore Centre  
Fancy Road  
Poole  
Dorset  
BH12 4FB

Gemtex reserves the right to make changes and improvements which may necessitate alteration to the specification without prior notice. This is not a contractual document.

FORM1026c

# 01256 587 800