

MULTIINOX 250÷1000



BREVETTO
Unical
PATENT

smoke pipes

LARGE WATER CONTENT, CONDENSING MODULAR BOILER

OUTPUT RANGE

from 250 to 1000 kW

OPERATION TEMPERATURE

no limit on the return temperature

SUPPLY

Natural Gas or LPG

MODELS

250

375

500

625

750

875

1000

Boiler body entirely in stainless steel - large water content - two return connections
wide modulation ratio premix burners - predisposed for outdoor installation IPX5D

MAIN COMPONENTS

MULTINOX is a modular gas boiler constituted by a whole of large water content condensing modules in stainless steel AISI 316L, and complete of modulating premix burners, suitable for both, indoor and outdoor installation.

MULTINOX can be assembled in battery, in order to create a modular heat generator, so that to increase its total capacity.

The construction satisfies completely the prescriptions given in the EN 303-1.

The components of the pressure vessel parts, such plates and pipes, are built in stainless steel AISI 316L, according to the tables EURONORM 25 and EURONORM 28. The welders and the WPS (Welding Procedure Specifications) are approved by Notified Bodies.

The outer shell of the each module is covered by a mineral wool mattress, 80 mm thick, protected, at its turn, by a tearing resistant foil.

Each module is constituted from:

- downward reversed furnace with direct flame.
- tube bundle composed of patented progressive pipes in stainless steel AISI 316L with, inside, multi-fin inserts in Al/Si/Mg, that assures: functional outflow of the condensates, absence of wet acidic deposits, self cleaning for gravity of the exchange surfaces.
- two C.H. Return collectors, for high and low temperature, that can be connected on both, front and rear part the modules group
- smoke chamber in stainless steel with connexion for condensate evacuation and level control.
- combustion chamber doors with shock absorbing closing system
- the control panel board with Master thermoregulator (HSCP), inside the casing
- Premix modulating burners down ward oriented

- two 1/2" connections for bulb holders with inside diameter of 15 mm (able to accept 3 bulbs each).
- casing side panels provided with holes for cable glands (for lodging the electrical supply and other auxiliary devices cable).
- Safeties: each module is equipped with its own safety valve set at 5.4 bar.
- Air / gas mixing at constant CO₂ on the whole range of modulation (modulation ratio, of every single module, of 1:4)
- Global modulation ratio up to 1:31

Easy handling with forklift, transpallet or with crane through the upper hooks.

The logic of operation foresees the optimization of the operation in this way:

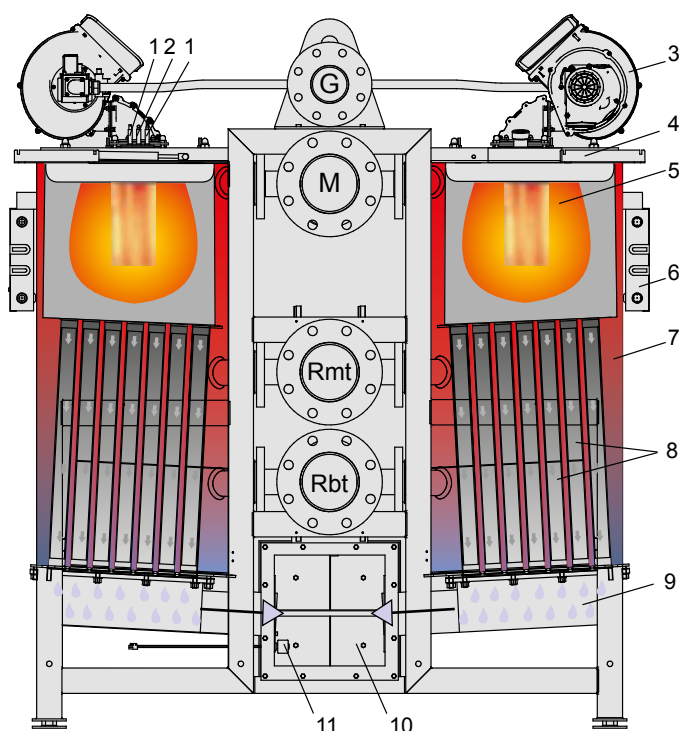
- Distribution of the power on the largest possible number of modules in order to work at the smallest possible output (down up to 30 kW) for the obtainment of the maximum efficiency.
- Automatic system of distribution of the working hours among the different modules in order to guarantee an homogeneous exploitation (optimal).

Optional accessories:

- Multifunction PCBs of zones management
- Modulating pumps
- Complete additional safety devices kit
- Modules preassembled in factory
- Trasportation: the boilers up to the model 500 are sent pre-assembled in groups of 2 - 3 or 4 modules; for the models from 625 to 1000 they are sent in 2 groups: one of 4 modules and one group with the remaining modules. The casing is always sent packaged separately.
- Different way of delivery can be agreed at the order stage.

Key:

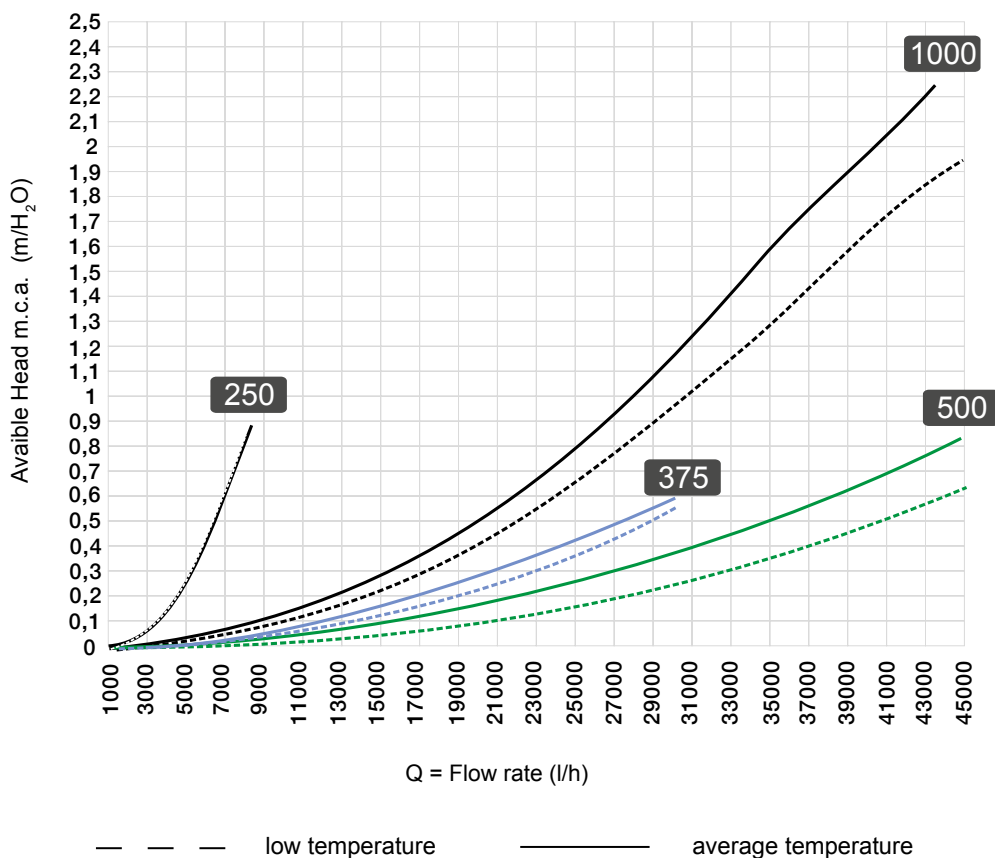
- 1 - Ionization electrodes (2x)
- 2 - Ignition electrode
- 3 - Fan
- 4 - Combustion chamber door
- 5 - Chamber of combustion
- 6 - Electrical junction box
- 7 - Boiler water
- 8 - Smoke pipes in stainless steel with inside aluminum profiles
- 9 - Bacinella raccogli condensata
- 10 - Smoke chamber
- 11 - Condensate level sensor
- M - C.H. Flow
- Rmt - C.H. Return Medium Temperature
- Rbt - C.H. Return Low Temperature



PRODUCT PLUS VALUES

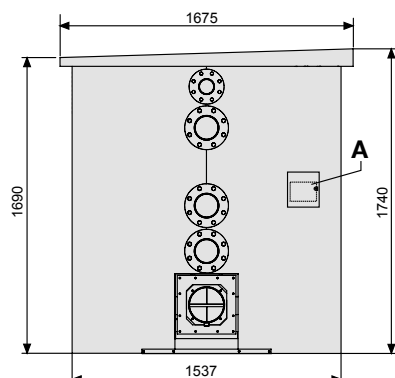
- **WIDE RANGE**
7 condensing gas models,
with outputs from 250 to 1000 kW
- **FOR DIRECT OUTDOOR INSTALLATION (IPX5D)**
- **MAXIMUM EFFICIENCY**
up to 106.2% at the minimum modulated output
- **HIGH MODULATION RATIO 1:31**
up to 1:31
- **LARGE WATER CONTENT THERMAL ELEMENTS**
90 liters each
- **VERTICAL THERMAL ELEMENTS ENTIRELY IN STAINLESS STEEL AISI 316L** complete with
premix modulating burners and all safety devices
- **SPECIAL SMOKE PIPES (Unical patent)**
in stainless steel with multifin, high thermal
conductibility aluminium alloy (Al/Si/Mg) inserts,
on purpose designed to improve the condensates
evacuation and to optimize the water circulation.
- **CYLINDRICAL COMBUSTION CHAMBER**
with passing flame
- **SMOKES NON RETURN VALVE**
- **STANDARDIZED HYDRAULIC MANIFOLDS**
without interceptions between the elements and
hydraulically balanced
- **ELECTRONIC CONTROL PANEL BOARD Ufly P** with proportional regulation of one/all thermal
elements
- **SEASONAL EFFICIENCY + 30%**
in comparison to the conventional boilers
- **MODULATING PUMP (optional)**
directly managed by the panel board to assure the
maximum condensation at all regimes
- **COMPACT DIMENSIONS**
height 1740 mm
width 1675 mm
depth 870 to 2830 mm
- **FOR IN BATTERY MOUNTING**
to constitute complex THERMAL MODULES and to
increase the total output

DIAGRAM OF FLOW RATE/PRESSURE AVAILABLE FOR INSTALLATION

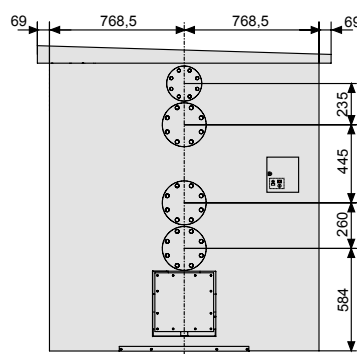


DIMENSIONS

BACK VIEW

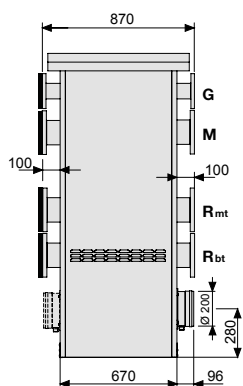


FRONT VIEW

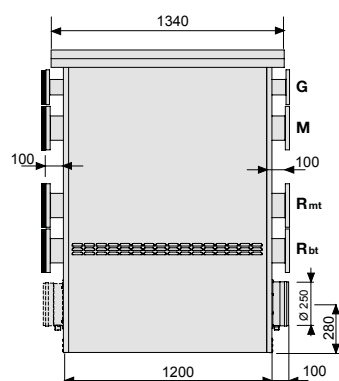


SIDE VIEW

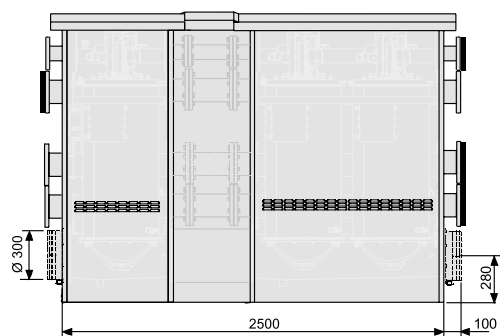
MULTINOX 250



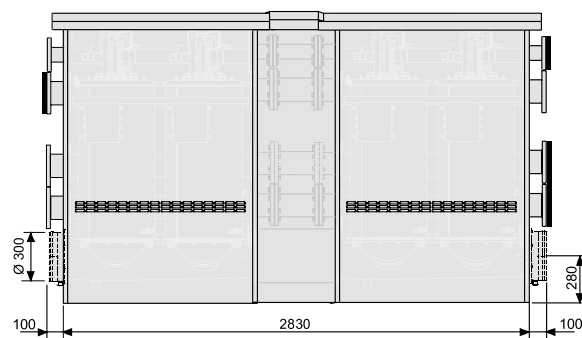
MULTINOX 375-500



MULTINOX 625-750



MULTINOX 875-1000



MULTINOX		250	375	500	625	750	875	1000
Dimensions		(M)	(M)	(M)	(M+S)	(M+S)	(M+S)	(M+S)
Modules Number		2	3	4	2+3	2+4	4+3	4+4
Height	mm	1740	1740	1740	1740	1740	1740	1740
Total depth	mm	670	1200	1200	2500	2500	2830	2830
Width "L"	mm	1675	1675	1675	1675	1675	1675	1675
Connections dimensions								
Gas connection G	DN mm (inch)	80 (3)	80 (3)	80 (3)	80 (3)	80 (3)	80 (3)	80 (3)
C.H. Flow M	DN mm (inch)	125 (5)	125 (5)	125 (5)	125 (5)	125 (5)	125 (5)	125 (5)
C.H. Return Rmt (middle temp.)	DN mm (inch)	125 (5)	125 (5)	125 (5)	125 (5)	125 (5)	125 (5)	125 (5)
I return plant Rbt (low temp.)	DN mm (inch)	125 (5)	125 (5)	125 (5)	125 (5)	125 (5)	125 (5)	125 (5)
Smoke manifold	mm	300	300	300	300	300	300	300
Chimney connection	mm	200	250	250	300	300	350	350
Condensate evacuation	mm	40	40	40	40	40	40	40
Net weight	kg	625	977	1250	1602	1875	2227	2500

TYPE AND SHAPE OF FURNACE

The thermal modules MULTIINOX are endowed with a truncated cone shaped furnace in which the flame develops.

The smokes are carried downward and are distributed in the multifinned pipes slightly tilted to favor a better thermal exchange with the boiler water.

The combustion gases are collected in the underlying smoke chamber and from here are sent to the chimney.

During the burner operation, within the operation field of the boiler, the combustion chamber is always under positive pressure.

- Boiler body with vertical bundle vertical integrally in stainless steel.
- Smoke pipes of diameter 42.4 mm in stainless steel, with self-cleaning multifin inserts in aluminum/silicon/magnesium.

SPECIAL SMOKE PIPES (patented)

SMOKE PIPES:

- Exceptional thermal exchange
- Functional outflow of the condensate
- Absence of wet acidic deposits
- Washout, for gravity, of the smooth exchange surfaces
- Greater duration

BREVETTO
Unical
PATENT



Multi-radial
aluminium
fins

External pipe
in stainless
steel AISI 316L



TECHNICAL DATA ACCORDING TO ErP DIRECTIVE

ELECTRICAL, HYDRAULIC, INSTALLATION DIAGRAMS AND CONTROLLERS can be unloaded from the web site www.unical.eu at the page of the product

MULTIINOX			250	375	500	625	750	875	1000
EFFECTIVE NOMINAL OUTPUT	P_n	kW	227	340					
SEASONAL ENERGY EFFICIENCY TO HEAT THE ROOM	η_s	%	92	93					
SEASON EFFICIENCY CLASS TO DISCHARGE			A	A	*	*	*	*	*
FOR BOILERS TO HEAT THE ROOM AND MIXED BOILERS: USEFUL HEAT OUTPUT									
USEFUL HEAT OUTPUT with high temperature capacity (Tr 60 °C / Tm 80 °C)	P_4	kW	226.6	340.2					
RATED HEAT OUTPUT EFFICIENCY with high temperature capacity (Tr 60 °C / Tm 80 °C)	η_4	%	89	89					
USEFUL POWER AT 30% OF THE RATED HEAT OUTPUT with low temperature capacity (Tr 30 °C)	P_1	kW	74.0	110.8					
PERFORMANCE AT 30% OF THE RATED HEAT OUTPUT with low temperature capacity (Tr 30 °C)	η_1	%	97	97					
BOILER WITH OUTPUT RANGE ADJUSTMENT: YES / NO			NO	NO					
AUXILIARY ELECTRICITY CONSUMPTION									
WITH A FULL LOAD	$e_{l_{max}}$	kW	0.313	0.470	0.626	0.782	0.939	1.095	1.252
WITH A PARTIAL LOAD	$e_{l_{min}}$	kW	0.035	0.035	0.035	0.035	0.035	0.035	0.035
STANDBY MODE	P_{SB}	kW	0.010	0.010	0.010	0.010	0.010	0.010	0.010
OTHER ELEMENTS									
HEAT DISPERSION ON STANDBY	P_{stby}	kW	0.460	0.690					
NITROGEN OXIDES EMISSIONS referred to NCV & (GCV)	NO_x	mg/kWh	59 (53)	60 (54)					
CONSUMPTION OF ANNUAL ELECTRICITY	Q_{HE}	GJ	706	1059					

* (Appliances not covered by Directive 2009/15 / EC)

TECHNICAL DATA

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MULTINOX		250	375	500	625	750	875	1000
Modell (M+S = Master + Slave)		(M)	(M)	(M)	(M+S)	(M+S)	(M+S)	(M+S)
Number of thermal modules		2	3	4	2+3	2+4	4+3	4+4
Boiler category		II _{2H3P}	II _{2H3P}	II _{2H3P}	II _{2H3P}	II _{2H3P}	II _{2H3P}	II _{2H3P}
Modulation ratio		1:7.76	1:11.5	1:15	1:19	1:23	1:27	1:31
Rated heat output on P.C.I. Q _n	kW	230	345	460	575	690	805	920
Minimum heat output on P.C.I. Q _{min}	kW	30	30	30	30	30	30	30
Rated useful power (Tr 60 / Tm 80 °C) P _n	kW	226.6	340.2	453.2	568.9	681.9	796.3	913.5
Minimum useful power (Tr 60 / Tm 80 °C) P _{n min}	kW	31.3	31.3	31.3	31.3	31.3	31.3	31.3
Rated useful power (Tr 30 / Tm 50 °C) P _{cond}	kW	257.6	353.3	471.0	588.2	706.6	822.7	934.7
Minimum useful power (Tr 30 / Tm 50 °C) P _{cond min}	kW	31.85	31.85	31.85	31.85	31.85	31.85	31.85
Rated power performance (Tr 60 / Tm 80°C)	%	98.5	98.6	98.5	98.95	98.8	98.9	99.3
Minimum power performance (Tr 60 / Tm 80°C)	%	104.2	104.2	104.2	104.2	104.2	104.2	104.2
Rated power performance (Tr 30 / Tm 50°C)	%	103.9	102.4	102.4	102.3	102.4	102.2	102.6
Minimum power performance (Tr 30 / Tm 50°C)	%	106.2	106.2	106.2	106.2	106.2	106.2	106.2
Performance at 30% of the load (Tr 30°C)	%	107.7	107.7	107.7	107.7	107.7	107.7	107.7
Combustion efficiency at nominal load	%	98.0	98.0	98.0	98.0	98.0	98.0	98.0
Combustion efficiency with reduced load	%	98.5	98.5	98.5	98.5	98.5	98.5	98.5
Heat loss at chimney with burner on	%	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Heat loss at chimney with burner off	%	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Net flue gas temperature tf-ta (min)(*)	°C	30.9	30.9	30.9	30.9	30.9	30.9	30.9
Net flue gas temperature tf-ta (max)(*)	°C	38.2	38.2	38.2	38.2	38.2	38.2	38.2
Maximum permitted temperature	°C	100	100	100	100	100	100	100
Maximum operating temperature	°C	80	80	80	80	80	80	80
Flue gas mass flow rate (min)	kg/h	49.1	49.1	49.1	49.1	49.1	49.1	49.1
Flue gas mass flow rate (max)	kg/h	260.7	391.1	521.4	651.8	782.2	912.5	1042.9
Excess air	%	25.59	25.59	25.59	25.59	25.59	25.59	25.59
Heat loss at chimney with burner on (min)	%	1.48	1.48	1.48	1.48	1.48	1.48	1.48
Heat loss at chimney with burner on (max)	%	1.91	1.91	1.91	1.91	1.91	1.91	1.91
Minimum heating circuit pressure	bar (kPa)	0.5 (50)	0.5 (50)	0.5 (50)	0.5 (50)	0.5 (50)	0.5 (50)	0.5 (50)
Maximum heating circuit pressure	bar (kPa)	6 (600)	6 (600)	6 (600)	6 (600)	6 (600)	6 (600)	6 (600)
Water content	l	208	301	401	509	570	702	802
Methane gas consumption G20 (pow.sup. 20 mbar) at Q _n	m³/h	24.3	36.5	48.6	60.8	73	85.1	97.3
Methane gas consumption G20 (pow.sup. 20 mbar) at Q _{min}	m³/h	3.17	3.17	3.17	3.17	3.17	3.17	3.17
Gas consumption G25 (pow.sup. 20/25 mbar) at Q _n	m³/h	28.3	42.4	56.6	70.7	84.9	99.0	113.1
Gas consumption G25 (pow.sup. 20/25 mbar) at Q _{min}	m³/h	3.69	3.69	3.69	3.69	3.69	3.69	3.69
Propane gas consumption (pow. sup. 37/50 mbar) at Q _n	kg/h	17.9	26.8	35.7	44.6	56.3	62.5	71.4
Propane gas consumption (pow. sup. 37/50 mbar) at Q _{min}	kg/h	2.33	2.33	2.33	2.33	2.33	2.33	2.33
Chimney base maximum pressure available	Pa	70	70	70	70	70	70	70
Max condensate production	kg/h	37	56	74	93	111	130	148
Emissions								
CO at maximum heat output with 0% of O ₂	mg/kWh	32	32	32	32	32	32	32
NO _x at maximum heat output with 0% of O ₂	mg/kWh	71	72	73	73	73	73	73
NO _x Class		6	6	6	6	6	6	6
Electrical data								
Power supply voltage/frequency	V/Hz	230/50	230/50	230/50	230/50	230/50	230/50	230/50
Fuse on the power supply	A (F)	6.3	6.3	6.3	6.3	6.3	6.3	6.3
Protection rating	IP	X5D	X5D	X5D	X5D	X5D	X5D	X5D

Room Temperature = 20°C (*) Temperatures detected with the unit in operation (Tr 60 / Tm 80°C)

Seasonal Efficiency η_{s} according to Directive 2009/125/EC for Outputs < = 400 kW. See Erp Table

Standstill heat losses at Δt 30K – P_{stby} – See Erp Table

Standstill electrical consumption – P_{sb} – See Erp Table

Ufly P



New and powerful interface for the simplified management of professional boilers

Ufly P can be inserted in the control panel, equipped with backlit TFT touch screen Display.

The thermoregulation functions allow the hourly weekly scheduling up to a maximum of 12 heating circuits completely independent and of a Domestic Hot Water storage tank (by means of optional SHC cards).

Time programming

- 3 time slots within the day with a different temperature that can be associated with each one of them.
- Storing up to 5 daily programs for the heating and up to 3 daily programs for Domestic Hot Water.
- Weekly programming: up to 3 programs for the heating and as many for the Domestic Hot Water; with association to a daily program.
- Additional functions: holiday, absence, extension of operating hours, automatic, summer, continuous heating, reduced, antifreeze, heating curves, installation status info, chimney sweeper function.
- Anti-legionella function.

Ufly P checks the **BMM** (Burner Module Manager) for the management of the single thermal element. The regulation of the heating zones and, more generally, of all types of loads, is done through **optional multifunction cards**, called **SHC** (Slave Heating Controller) for the circuits CH, DHW and the auxiliary resources (timed relays, solar accumulators).

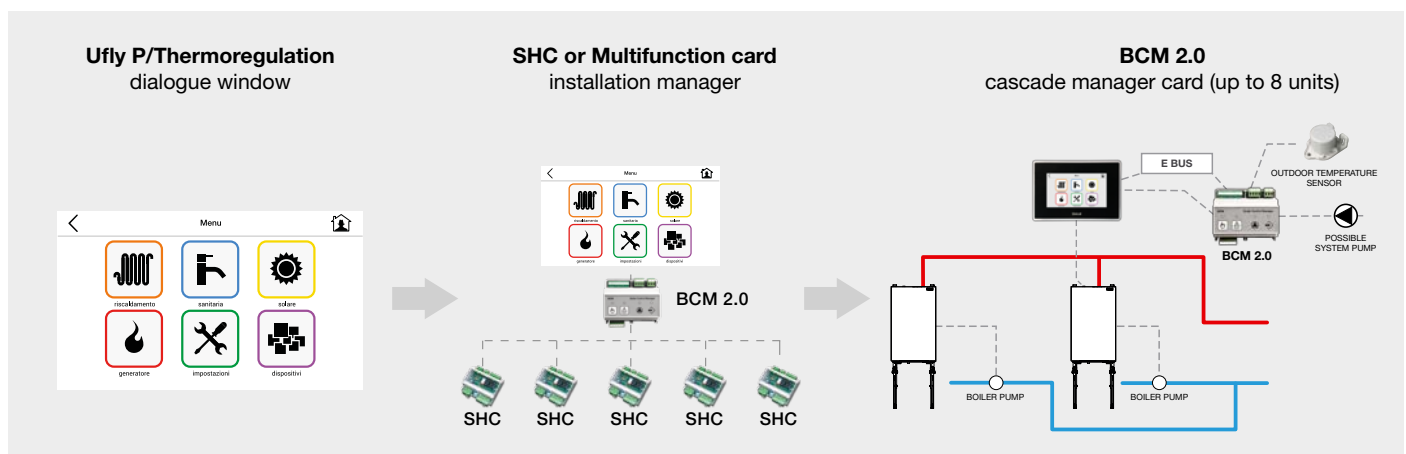
Telemanagement

Alternatively, there are available 2 different communication protocols: **eBUS** and **Modbus**, intended for connection to different control devices.

- Acquisition of operational information of all the connected devices
- Parameters Setting / Changing of each module
- Diagnostic management: alarm Acquisition and Reset
- Gateway: allows the conversion of the Modbus / eBUS protocol to access all resources connected to the local eBUS

Included: Outdoor temperature sensor

Mounted: Flow temperature sensor, return temperature sensor.



KIT CONTROL PANEL Ufly P

Can be used for single boilers.

Composed by:

- Viewer / Programmer Ufly P
- Outdoor temperature sensor

Standard supplied for:

- ALKON 140 EXT
- KONf 200-400
- MODULEX EXT
- MULTIINOX 116
- MULTIINOX 250÷1000
- SPK 150÷1000

Optional for:

- ALKON 50C
- ALKON 70C
- KONf 115
- KON 115



Ufly P



Outdoor temp. sensor

KIT CONTROL MANAGER Ufly P

Required to manage systems with up to 8 battery boilers.

Composed by:

- Viewer / Programmer Ufly P
- Cascade manager card BCM 2.0
- Power pack 24 V
- Outdoor temperature sensor
- D.H.W. temperature sensor

Optional for cascade /tele-management of:

- ALKON 50 C / 70 C
- ALKON 140 EXT
- KONf 115 / KON 115
- MULTIINOX 250÷1000
- MULTIINOX 116
- SPK 150÷1000



Ufly P



BCM 2.0



Power Pack



Outdoor temp. sensor



D.H.W. temp. sensor

GATEWAY P

Ufly P is also an APP to conventionally manage, from your device (tablet and smartphone), via WIFI / LAN, programming, remote control and real-time notifications of any blockages or anomalies of the boiler, which can be connected via **"Gateway P"** (optional).

GATEWAY P: Remote control management for the Professional Unical Boilers.

Main functions

- LAN or WIFI connection
- APP for smart phone and tablet
- Remote managements of the heating circuits time program
- Alarm notification on the mobile device
- Visualisation of the status of boiler
- Series of free Software tool for monitoring and setting
- eBUS, Modbus RTU, connection
- 230/24 V power adapter for the other device installed (ex. SHC multifunctional module)



APP Ufly

Ufly APP allows the Unical heating system to be controlled remotely from smartphone or tablet. It allows you to programme and control your heating system from a distance by connecting the system to the home network and thanks to the pairing system integrated to the APP and UFLY P you can create a perpetual connection between your devices and the boilers.

Details of the main functions of the Ufly APP:

- **HEATING and DOMESTIC HOT WATER**
Daily and Weekly Programming the heating system circuits and domestic hot water
- **BOILER**
You can check the status of the boiler by verifying whether it is activated for the heating system or for the domestic hot water system, in addition to other useful information related to the system.
- **SOLAR**
You can view the status of the solar heating system, if installed, and turn it on or off.

■ ERROR STATUS

You can view the history of the errors generated by the system and RESET the system which will resolve the problem directly by simply restarting the system itself in the case of critical errors.

■ NOTIFICATIONS

If a problem occurs in the system, you will be immediately notified

with a push notification and, if the failure is not immediately resolved by RESETING, you can contact the Technical Assistance and report the displayed error.

The APP is available in the following languages: Italian, English, Spanish, French, Russian, Polish, Turkish and Romanian.

