

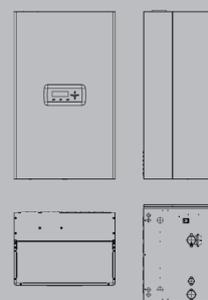
Condensing generators



Condexa Pro

Wall-hung gas condensing modules
Stand alone installation

In conformity with Directive 2009/125/EC
Condensing thermal modules for indoor applications (for
outdoor with optional kit)
Modular design to ensure an easy and fast installation
Low polluting emissions, Class 6 (DIN EN 15502)



RIELLO
Energy For Life

Condexa Pro

PRODUCT OVERVIEW

Condexa PRO is the new Riello proposal as a modular condensing wall-hung system, capable to ensure extremely high performance level and cover a wide range of applications, with the possibility of indoor or outdoor installation, with open chamber or sealed combustion, stand alone or cascade configurations are possible with heat output up to 1120 kW.

The range consists of 8 models with thermal modules from 35 up to 131 kW. Models from 57 up to 135 are equipped with the innovative heat exchanger with patented geometries, consisting of two smooth concentric stainless steel pipes, each having a pentagonal inner section and a circular outer section, designed to maximize the exchange surface and offer maximum corrosion resistance. The 35/50 kW models are equipped with an helical, single principle exchanger, called LINOX.

The primary circuit pump with modulating regulation allows working with a settable constant ΔT , reducing set-up plant regime times and maximizing condensation. The basic electronics include climate control, module cascade management, with integrated master / slave functions, automatic summer / winter switching and the possibility of managing both a direct zone and a DHW tank.

The electronics also offers the possibility of remote management via 0-10V input or with the Modbus protocol. Standard equipment includes: boiler drain tap, safety valves, LPG conversion kit and wall support. To complete the system there are accessories specifically designed for modular and cascade applications, with the possibility of working with different hydraulic management logics, ie thermal modules with circulators, 2-way valves or no interception. Through appropriate accessories there is also the possibility of managing the distribution of the secondary circuit, up to 16 mixed zones.

The optimal management of combustion and the high modulation ratios from 1 up to 50 for the cascade installations with 10 thermal modules allow high efficiencies and low pollutant emissions (Class 6, UNI EN 15502-1).

- Service continuity is guaranteed by the system modularity: even in the case of a module failure, the overall operation it is not prejudiced;
- The anti-freeze and anti-seize functions ensure operation in all weather conditions
- Maximum operating pressure: 6 bar
- A wide range of accessories is available to ensure a simple, fast and complete cascade installation.

CONDEXA PRO 35 P – 70 P TECHNICAL DATA

MODEL	CONDEXA PRO 35 P	CONDEXA PRO 50 P	CONDEXA PRO 57 P	CONDEXA PRO 70 P
Material	Steel	Steel	Steel	Steel
Efficiency class	> 93 + 2 log Pn			
Fuel	NG-LPG	NG-LPG	NG-LPG	NG-LPG
Test room temperature	°C	20	20	20
Max. rated heat input at furnace (LCV)	kW	34,9	45,0	57,0
Min. rated heat input at furnace (LCV)	kW	9,0	9,0	14,0
Max. rated heat output (80-60°C)	kW	34,4	44,2	55,7
Min. rated heat output (80-60°C)	kW	8,9	8,9	13,5
Max. rated heat output (50-30°C)	kW	38,0	48,8	61,9
Min. rated heat output (50-30°C)	kW	9,9	9,9	14,9
Efficiency at max. rated heat output (80-60°C)	%	98,4	98,3	98,3
Efficiency at min. rated heat output (80-60°C)	%	99,1	98,9	98,9
Efficiency at max. rated heat output (50-30°C)	%	108,7	108,6	108,6
Efficiency at min. rated heat output (50-30°C)	%	110,0	109,7	109,3
Useful efficiency at 30%	%	109,5	109,2	109,2
Heat loss in standby mode	%	0,1	0,1	0,1
Chimney losses with burner on at P.max	%	2,3	2,3	2,3
Chimney losses with burner on at P.min	%	0,5	0,1	0,1
Blanket losses with burner on with 70°C average Temperature	%	1,4	1,1	0,9
Blanket losses with burner off with 70°C average Temperature	%	1,4	1,1	0,9
Flue gas temperature at max. and min. power 80-60°C	°C	66,5 / 61,0	67,5 / 61,0	71,0 / 61,0
Flue gas temperature at max. and min. power 50-30°C	°C	44,0 / 32,0	45,0 / 32,0	45,0 / 33,0
Excess air at max.power		1,27	1,27	1,27
Excess air at min.power		1,27	1,27	1,27
Max-min flue gas mass flow rate	kg / s	0,0150-0,0050	0,0200-0,0050	0,0250-0,0070
Available useful discharge head P.max	Pa	300	480	510
Available useful discharge head P.min	Pa	45	45	35
Flue side pressure drop	mbar	---	---	---
NOx	mg/kWh	42,0	43,9	34,2
Water-side resistance (ΔT 20°C)	mbar	---	---	---
Available useful discharge head (ΔT 20°C)	mbar	420	250	490
Water-side resistance (ΔT 10°C)	mbar	---	---	---
Available useful discharge head (ΔT 10°C)	mbar	---	---	---
Water content	l	5	5	15
Maximum working pressure	bar	6	6	6
Expansion tank capacity	l	---	---	---
Power supply	V/Hz	230-50	230-50	230-50
Electrical protection level	IP	IPX4D	IPX4D	IPX4D
Electrical consumption with boiler at max. power	W	75	105	63
Electrical consumption with boiler at min. power	W	31	34	30
Electrical consumption with pumps at max. power	W	---	---	---
Electrical consumption with pumps at min. power	W	---	---	---
Flue gas discharge diameter	mm	80	80	80
Empty weight	kg	66	66	78
Category according to UNI 10642		II 2H3P appliance	II 2H3P appliance	II 2H3P appliance
Boiler water content	l	---	---	---
Boiler losses	W / K	---	---	---
Boiler material		---	---	---
Insulation thickness	mm	---	---	---
Boiler circulator absorption	W	---	---	---
Sanitary expansion vessel	l	---	---	---
Noise	dB(A)	51	52	53
Nominal/min natural gas pressure supply (G20)	mbar	20 / 17	20 / 17	20 / 17
Nominal/min natural gas pressure supply (G31)	mbar	37 / 25	37 / 25	37 / 25

CONDENSING GENERATORS

Wall-hung gas condensing modules

CONDEXA PRO 90-135 TECHNICAL DATA

MODEL	CONDEXA PRO 90	CONDEXA PRO 100	CONDEXA PRO 115	CONDEXA PRO 135	
Material	Steel	Steel	Steel	Steel	
Efficiency class	> 93 + 2 log Pn	> 93 + 2 log Pn	> 93 + 2 log Pn	> 93 + 2 log Pn	
Fuel	NG-LPG	NG-LPG	NG-LPG	NG-LPG	
Test room temperature	°C	20	20	20	
Max. rated heat input at furnace (LCV)	kW	90,0	97,0	112,0	131,0
Min. rated heat input at furnace (LCV)	kW	19,4	19,4	22,4	26,2
Max. rated heat output (80-60°C)	kW	88,3	95,2	109,8	129,0
Min. rated heat output (80-60°C)	kW	19,2	19,2	22,1	26,0
Max. rated heat output (50-30°C)	kW	97,4	105,1	121,1	142,1
Min. rated heat output (50-30°C)	kW	21,1	21,1	24,5	28,9
Efficiency at max. rated heat output (80-60°C)	%	98,2	98,1	98,5	98,3
Efficiency at min. rated heat output (80-60°C)	%	98,8	98,8	99,2	99,1
Efficiency at max. rated heat output (50-30°C)	%	108,3	108,2	108,6	108,3
Efficiency at min. rated heat output (50-30°C)	%	109,2	109,2	110,0	110,0
Useful efficiency at 30%	%	109,1	109,0	109,0	109,1
Heat loss in standby mode	%	0,1	0,1	0,1	0,1
Chimney losses with burner on at P.max	%	2,5	2,6	2,5	2,6
Chimney losses with burner on at P.min	%	0,2	0,2	0,1	0,1
Blanket losses with burner on with 70°C average Temperature	%	0,9	0,9	0,9	0,9
Blanket losses with burner off with 70°C average Temperature	%	0,9	0,9	0,9	0,9
Flue gas temperature at max. and min. power 80-60°C	°C	76,0 / 62,0	78,0 / 62,0	75,0 / 61,0	77,0 / 61,0
Flue gas temperature at max. and min. power 50-30°C	°C	47,0 / 35,0	49,0 / 35,0	45,0 / 33,0	48,0 / 35,0
Excess air at max.power		1,27	1,27	1,27	1,27
Excess air at min.power		1,27	1,27	1,27	1,27
Max-min flue gas mass flow rate	kg / s	0,0400-0,0072	0,0460-0,0072	0,0500-0,0100	0,0600-0,0110
Available useful discharge head P.max	Pa	560	610	500	353
Available useful discharge head P.min	Pa	32	32	30	28
Flue side pressure drop	mbar	---	---	---	---
NOx	mg/kWh	38,1	38,7	39,3	46,1
Water-side resistance (ΔT 20°C)	mbar	160	210	350	510
Available useful discharge head (ΔT 20°C)	mbar	---	---	---	---
Water-side resistance (ΔT 10°C)	mbar	---	---	---	---
Available useful discharge head (ΔT 10°C)	mbar	---	---	---	---
Water content	l	17	17	23	25
Maximum working pressure	bar	6	6	6	6
Expansion tank capacity	l	---	---	---	---
Power supply	V/Hz	230-50	230-50	230-50	230-50
Electrical protection level	IP	IPX4D	IPX4D	IPX4D	IPX4D
Electrical consumption with boiler at max. power	W	150	203	205	302
Electrical consumption with boiler at min. power	W	36	31	44	45
Electrical consumption with pumps at max. power	W	---	---	---	---
Electrical consumption with pumps at min. power	W	---	---	---	---
Flue gas discharge diameter	mm	110	110	110	110
Empty weight	kg	81	81	93	97
Category according to UNI 10642		II 2H3P appliance	II 2H3P appliance	II 2H3P appliance	II 2H3P appliance
Boiler water content	l	---	---	---	---
Boiler losses	W / K	---	---	---	---
Boiler material		---	---	---	---
Insulation thickness	mm	---	---	---	---
Boiler circulator absorption	W	---	---	---	---
Sanitary expansion vessel	l	---	---	---	---
Noise	dB(A)	55	56	57	57
Nominal/min natural gas pressure supply (G20)	mbar	20 / 17	20 / 17	20 / 17	20 / 17
Nominal/min natural gas pressure supply (G31)	mbar	37 / 25	37 / 25	37 / 25	37 / 25

ErP TECHNICAL DATA

MODEL		CONDEXA PRO 35 P	CONDEXA PRO 50 P	CONDEXA PRO 57 P	CONDEXA PRO 70 P
Seasonal efficiency class in central heating mode		A	A	A	A
Seasonal efficiency class in water heating		---	---	---	---
Useful (rated) heat output	Pn kW	34,4	44,2	56	68
Seasonal efficiency class in room heating mode		94	94	94	94
USEFUL THERMAL POWER					
At useful heat output and at high temperature capacity (*)	P4 kW	34,4	44,2	55,7	67
At 30% of useful heat output and at low temperature capacity (**)	P1 kW	11,5	14,7	18,7	22,3
EFFICIENCY					
At useful heat output and at high temperature capacity (*)	η_4 %	88,4	88,4	88,4	88,2
At 30% of useful heat output and at low temperature capacity (**)	η_1 %	98,4	98,2	98,2	98,0
AUXILIARY ELECTRICAL CONSUMPTION					
At full load	elmax W	75	105	63	77
At partial load	elmin W	31	34	30	30
In standby mode	PSB W	9	9	13	13
OTHER PARAMETERS					
Thermal losses in Stand-by mode	Pstby W	45,0	57,0	72,0	87,0
Pilot flame energy consumption	Pign W	---	---	---	---
Yearly energy consumption	QHE GJ	71	91	117	141
Noise level, indoor (sound power)	LWA dB	51	52	53	54
Nitrogen oxide emissions (NOx)	NOx mg/kWh	42,0	43,9	34,2	36,4
FOR COMBINED HEATING EQUIPMENT					
Declared load profile					
Energy efficiency class in water heating	η_{wh} %	---	---	---	---
Daily electrical energy consumption	Qelec kWh	---	---	---	---
Daily fuel consumption	Qfuel kWh	---	---	---	---
Annual electrical energy consumption	AEC kWh	---	---	---	---
Annual fuel consumption	AFC GJ	---	---	---	---

MODEL		CONDEXA PRO 90	CONDEXA PRO 100	CONDEXA PRO 115	CONDEXA PRO 135
Seasonal efficiency class in central heating mode		---	---	---	---
Seasonal efficiency class in water heating		---	---	---	---
Useful (rated) heat output	Pn kW	88	95	110	129
Seasonal efficiency class in room heating mode		94	94	94	94
USEFUL THERMAL POWER					
At useful heat output and at high temperature capacity (*)	P4 kW	88,3	95,3	109,8	129,0
At 30% of useful heat output and at low temperature capacity (**)	P1 kW	29,4	31,7	36,6	43,0
EFFICIENCY					
At useful heat output and at high temperature capacity (*)	η_4 %	88,3	88,2	88,6	88,2
At 30% of useful heat output and at low temperature capacity (**)	η_1 %	98,1	98,0	98,0	98,1
AUXILIARY ELECTRICAL CONSUMPTION					
At full load	elmax W	150	203	205	302
At partial load	elmin W	36	31	44	45
In standby mode	PSB W	6	6	6	8
OTHER PARAMETERS					
Thermal losses in Stand-by mode	Pstby W	115,0	124,0	143,0	168,0
Pilot flame energy consumption	Pign W	---	---	---	---
Yearly energy consumption	QHE GJ	---	---	---	---
Noise level, indoor (sound power)	LWA dB	55	56	57	57
Nitrogen oxide emissions (NOx)	NOx mg/kWh	38,1	38,7	39,3	46,1
FOR COMBINED HEATING EQUIPMENT					
Declared load profile					
Energy efficiency class in water heating	η_{wh} %	---	---	---	---
Daily electrical energy consumption	Qelec kWh	---	---	---	---
Daily fuel consumption	Qfuel kWh	---	---	---	---
Annual electrical energy consumption	AEC kWh	---	---	---	---
Annual fuel consumption	AFC GJ	---	---	---	---

CONDENSING GENERATORS

Wall-hung gas condensing modules

LAW TABLE 10

BOILER MODELS		CONDEXA PRO 35 P	CONDEXA PRO 50 P	CONDEXA PRO 57 P	CONDEXA PRO 70 P	
MAXIMUM THERMAL POWER						
	Useful (80/60°C)	kW	34,4	44,2	55,7	67
	Useful (50/30°C)	kW	38,0	48,8	61,9	73,9
	Furnace	kW	34,9	45,0	57	68
MINIMUM THERMAL POWER						
	Useful (80/60°C)	kW	8,9	8,9	13,5	13,5
	Useful (50/30°C)	kW	9,9	9,9	14,9	14,9
	Furnace	kW	9,0	9,0	14	14
EFFICIENCY						
	Useful (80/60°C)	%	98,4-99,1	98,34-98,9	98,3-98,9	98,1-98,9
	Useful (50/30°C)	%	108,7-110,0	108,6-119,7	108,6-109,3	108,1-109,3
	With reduced load 30% (return 30°C)	%	109,5	109,2	109,2	109
COMBUSTION						
	Chimney and blanket losses with burner on	%	2,5-1,4	2,3-1,1	2,3-0,9	2,3-0,9
	Chimney losses with burner off	%	0,5	0,1	0,1	0,1
	Flue flow rate	kg / s	0,015	0,020	0,025	0,03
GAS EMISSION VALUES AT MAX AND MIN FLOW RATES G20 (**)						
	CO s.a. less than (***)	ppm	63	73	79	90
	CO ₂	%	9	9	9	9
	MAXIMUM NOx (EN 677) (***)	ppm	30	30	30	30
	Flue temperature	°C	66,5	67,5	71	72
	ΔT flue - return water	K	6,50	7,50	11	12
	CO s.a. less than (***)	ppm	2,3	2,3	6,5	6,5
	CO ₂	%	9	9	9	9
	MINIMUM NOx (EN 677) (***)	ppm	30	30	30	30
	Flue temperature	°C	61	61	61	61
	ΔT flue - return water	K	1	1	1	1
	NOx class		6	6	6	6
	Electric power: circulator, total		75	105	63	77

(**) Verification carried out with concentric pipe Ø 60-100 mm length 0.85 m; water temperatures 80-60 °C.

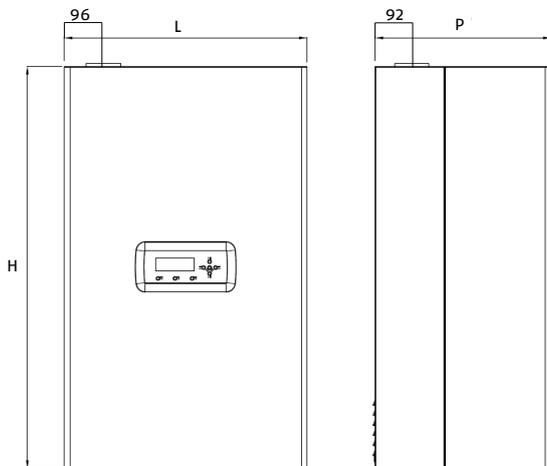
(***) Graphs for intermediate power values are also available. The expressed data must not be used to certify the plant; for certification the data indicated in the "installation manual" measured at the time of the first ignition must be used.

BOILER MODELS		Condexa PRO 90	Condexa PRO 100	Condexa PRO 115	Condexa PRO 135	
MAXIMUM THERMAL POWER						
	Useful (80/60°C)	kW	88,3	95,2	109,8	129
	Useful (50/30°C)	kW	97,4	105,1	121,1	142,1
	Furnace	kW	90	97	112	131
MINIMUM THERMAL POWER						
	Useful (80/60°C)	kW	19,2	19,2	22,1	26,2
	Useful (50/30°C)	kW	21,1	21,1	24,5	26,2
	Furnace	kW	19,4	19,4	22,4	28,9
EFFICIENCY						
	Useful (80/60°C)	%	98,2-98,8	98,1-98,8	98,5-99,2	98,3-99,1
	Useful (50/30°C)	%	108,3-109,2	108,2-109,2	108,6-110	108,3-110
	With reduced load 30% (return 30°C)	%	109,1	109	109	109,1
COMBUSTION						
	Chimney and blanket losses with burner on	%	2,5-0,9	2,6-0,9	2,5-0,9	2,6-0,9
	Chimney losses with burner off	%	0,1	0,1	0,1	0,1
	Flue flow rate	kg / s	0,04	0,046	0,05	0,06
GAS EMISSION VALUES AT MAX AND MIN FLOW RATES G20 (**)						
	CO s.a. less than (***)	ppm	81	92	92	92
	CO ₂	%	9	9	9	9
	MAXIMUM NOx (EN 677) (***)	ppm	30	30	30	35
	Flue temperature	°C	76	78	75	77
	ΔT flue - return water	K	16	18	15	17
	CO s.a. less than (***)	ppm	7,5	7,5	6,0	6,5
	CO ₂	%	9	9	9	9
	MINIMUM NOx (EN 677) (***)	ppm	30	30	30	40
	Flue temperature	°C	62	62	61	61
	ΔT flue - return water	K	2	2	1	1
	NOx class		6	6	6	6
	Electric power: circulator, total		150	203	205	302

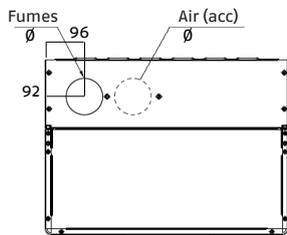
(**) Verification carried out with concentric pipe Ø 60-100 mm length 0.85 m; water temperatures 80-60 °C.

(***) Graphs for intermediate power values are also available. The expressed data must not be used to certify the plant; for certification the data indicated in the "installation manual" measured at the time of the first ignition must be used.

OVERALL DIMENSIONS

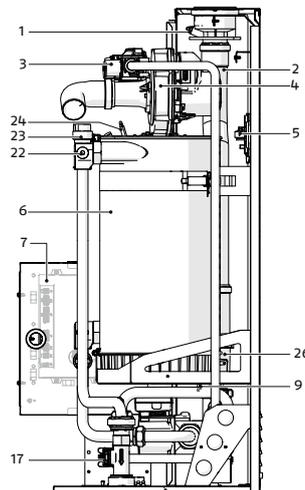
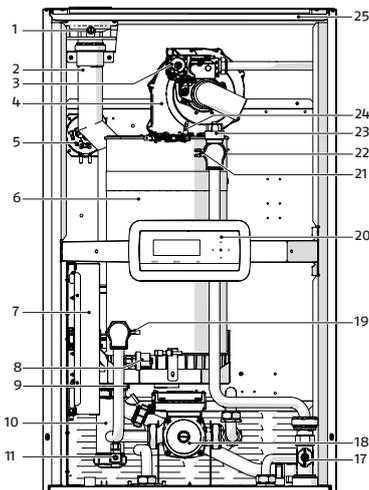


Commercial description	H mm	L mm	P mm	∅ fumes/air mm	Net weight kg
CONDEXA PRO 35 P	1000	600	435	80	66
CONDEXA PRO 50 P	1000	600	435	80	66
CONDEXA PRO 57 P	1000	600	435	80	78
CONDEXA PRO 70 P	1000	600	435	80	78
CONDEXA PRO 90	1000	600	435	110	81
CONDEXA PRO 100	1000	600	435	110	81
CONDEXA PRO 115	1165	600	435	110	93
CONDEXA PRO 135	1165	600	435	110	97

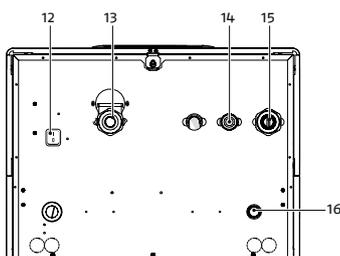


SYSTEM LAYOUT

Condexa PRO 35 P – 50 P



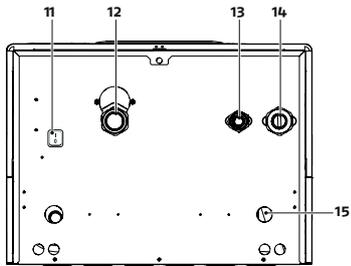
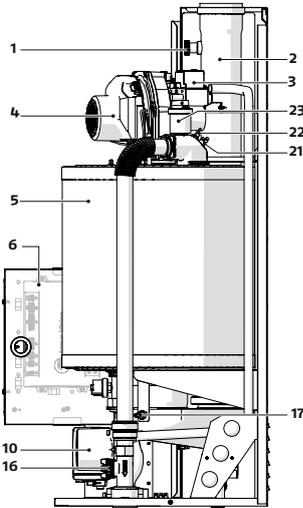
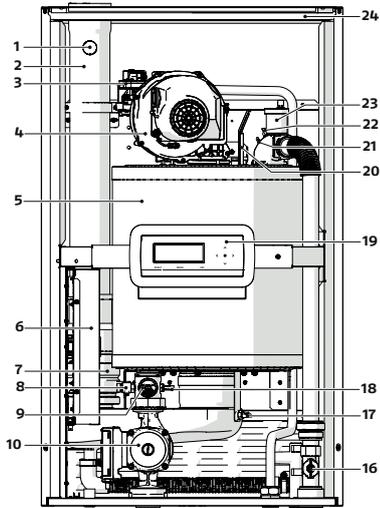
1. Flue gas analysis outlet
2. Flue gas exhaust connection
3. Gas valve
4. Fan
5. Flue gases pressure switch
6. Combustion chamber
7. Electrical panel
8. Minimum pressure switch set at 0.7 bar
9. Exhaust flues probe
10. Condensate drain syphon
11. Drain tap
12. Main switch
13. System return
14. Gas supply
15. Central heating flow
16. Condensate drain connection
17. Flow meter
18. Circulator
19. Return probe
20. Control panel
21. Safety thermostat with manual reset by PCB
22. Flow probe
23. Automatic bleed valve
24. Ignition / detection electrode
25. Casing



CONDENSING GENERATORS

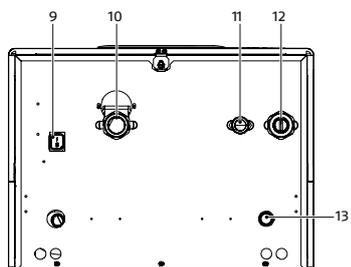
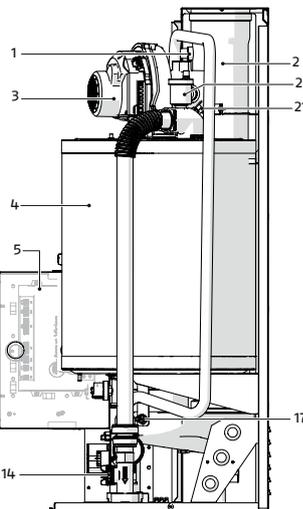
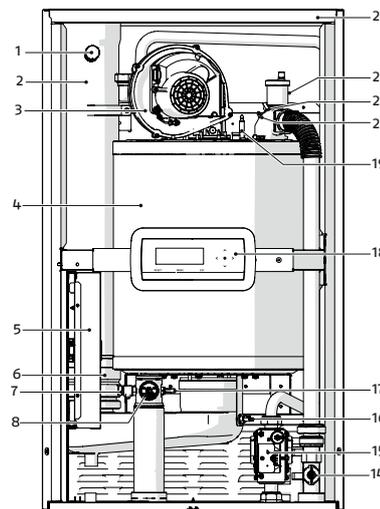
Wall-hung gas condensing modules

Condexa PRO 57 P - 70 P



1. Flue gas analysis outlet
2. Flue gas exhaust connection
3. Gas valve
4. Fan
5. Combustion chamber
6. Electrical panel
7. Smoke-exhaust flue non-return valve
8. Drain tap
9. Minimum pressure switch set at 0.7 bar
10. Circulator
11. Main switch
12. System return
13. Gas supply
14. Central heating flow
15. Condensate drain connection
16. Flow meter
17. Exhaust flues probe
18. Return probe
19. Control panel
20. Ignition / detection electrode
21. Safety thermostat with manual reset by PCB
22. Flow probe
23. Automatic bleed valve
24. Casing

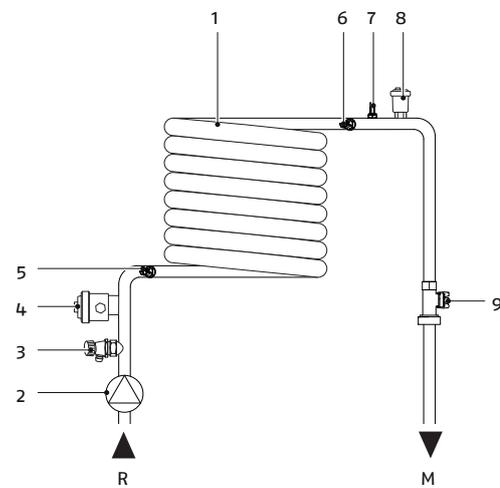
Condexa PRO 90 - 100 - 115 - 135



1. Flue gas analysis outlet
2. Flue gas exhaust connection
3. Fan
4. Combustion chamber
5. Electrical panel
6. Smoke-exhaust flue non-return valve
7. Drain tap
8. Minimum pressure switch set at 0.7 bar
9. Main switch
10. System return
11. Gas supply
12. Central heating flow
13. Condensate drain connection
14. Flow meter
15. Gas valve
16. Exhaust flues probe
17. Return probe
18. Control panel
19. Ignition / detection electrode
20. Safety thermostat with manual reset by PCB
21. Flow probe
22. Automatic bleed valve
23. Casing

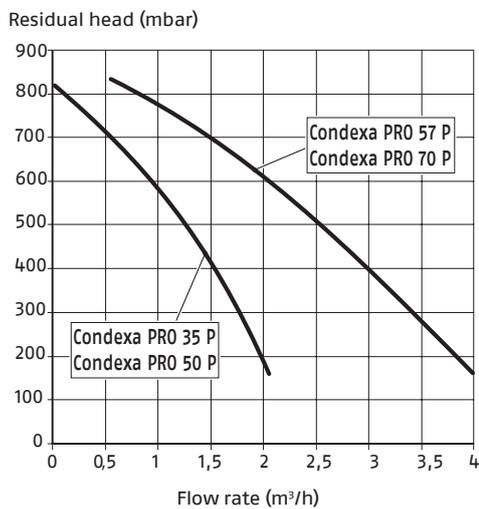
HYDRAULIC CIRCUIT

- 1. Heat exchanger
- 2. Circulator (only for Condexa 35 P - 50 P - 57 P - 70 P)
- 3. Drain tap
- 4. Minimum pressure switch
- 5. NTC return probe
- 6. NTC flow probe
- 7. Safety thermostat temperature sensor
- 8. Automatic bleed valve
- 9. Flow meter
- F Central heating flow
- R System return



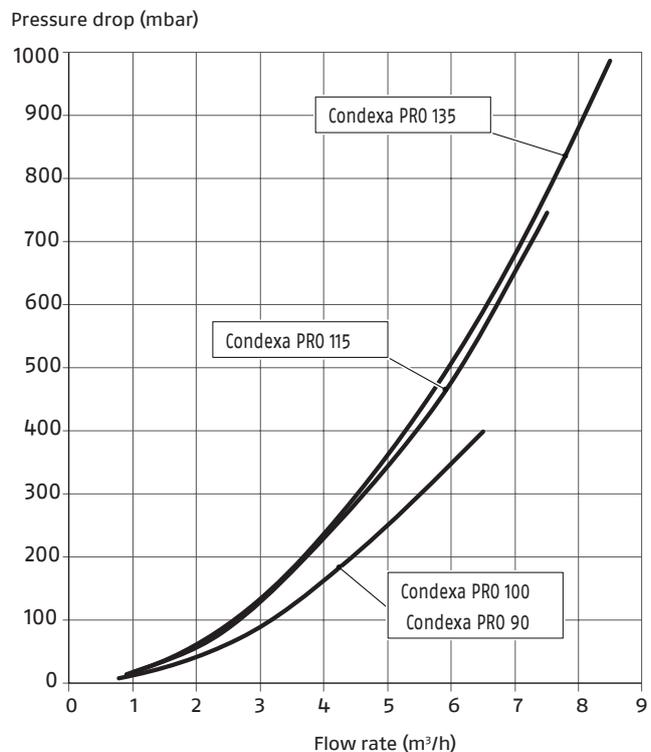
CIRCULATORS

Condexa Pro 35 P, 50 P, 57 P and 70 P with circulator



Condexa Pro 90 - 100 - 115 - 135 with circulator as accessory

Pressure drops on the water side of the generators



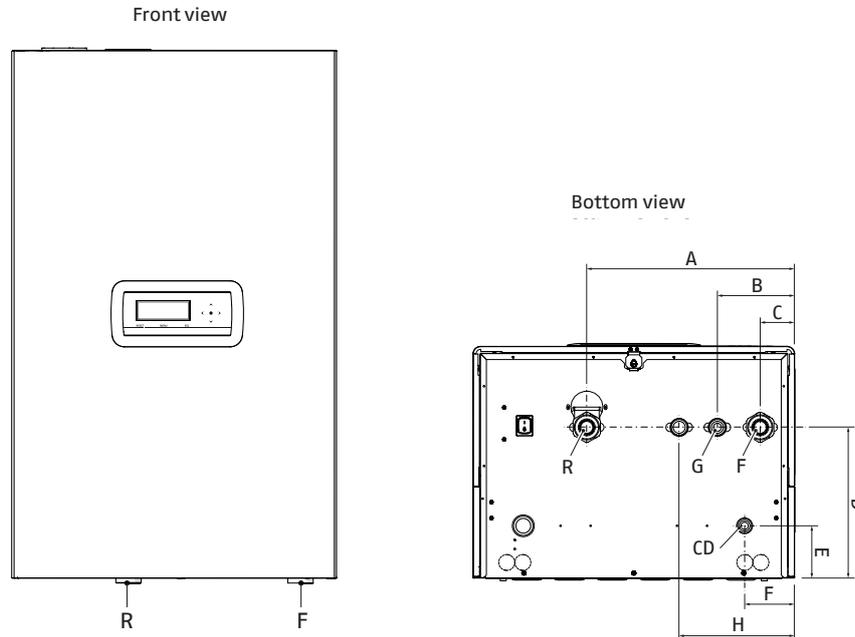
Condexa PRO 90, Condexa PRO 100, Condexa PRO 115 and Condexa PRO 135 have no circulator which must be installed internally or externally to the appliance. For its sizing consider the water side pressure losses of the thermal module, shown in the graph above.

CONDENSING GENERATORS

Wall-hung gas condensing modules

HYDRAULIC CONNECTIONS AND FUMES DISCHARGE

The dimensions and position of thermal module's hydraulic connections are shown in the table below.



DESCRIPTION	Condexa PRO									
		35 P	50 P	57 P	70 P	90	100	115	135	
A	mm	387	387	387	387	387	387	387	387	
B	mm	143,5	143,5	143,5	143,5	143,5	143,5	143,5	143,5	
C	mm	63,5	63,5	63,5	63,5	63,5	63,5	63,5	63,5	
D	mm	283,5	283,5	283,5	283,5	283,5	283,5	283,5	283,5	
E	mm	98,5	98,5	98,5	98,5	98,5	98,5	98,5	98,5	
F	mm	92,5	92,5	92,5	92,5	92,5	92,5	92,5	92,5	
H	mm	202,5	202,5	-	-	-	-	-	-	
F	(System flow)	∅	G 1 "1/2 M							
R	(System return)	∅	G 1 "1/2 M							
CD	(condensate drain)	∅ mm	25	25	25	25	25	25	25	
G	Gas input	∅	G 1" M							

NOTE:

In case of type B installation, the combustion air is taken from the environment and passes through the openings (jalousies) made on the back panel of the appliance which must be located in an appropriate technical room and provided with ventilation.

WATER IN THE PLANT

Before connecting the thermal module, it is necessary to clean the system. This step is absolutely required when the appliance replaces another one on pre-existing systems. In order to carry out this cleaning activity, if the old generator is still installed on the system, it is advisable to:

- Add a de-scaling additive.
- Operate the system with the generator on for around 7 days.
- Discharge dirty system water and flush the system one or more times with clean water.

If the system is very dirty, repeat the last procedure one more time. In case of new installation or if the old generator is not present or available, use a pump to circulate the additive water in the system for about 10 days and carry out the final washing as described in the previous paragraph.

Once the cleaning has been completed, it is recommended to add a suitable protective fluid to the system's water before installing the thermal module.

Do not use incompatible liquid detergents, including acids (eg chloridric acid and similar) in any concentration.

Do not subject the exchanger to cyclical pressure variations because the fatigue stress is very dangerous for the integrity of the system components.

Sludge, limestone and contaminants present in the water can lead to irreversible damage to the heat generator, even in short times and regardless of the quality level of the materials used.

The quality of the water used in the heating system must comply with the following parameters:

Parameters	Value	Unit
General characteristic	Colorless, without sediment	
PH value	Min 6.5; Max 8	PH
Dissolved oxygen	<0.05	mg / l
Total iron (Fe)	<0.3	mg / l
Total Copper (Cu)	<0.1	mg / l
Na2SO3	<10	mg / l
N2H4	<3	mg / l
PO4	<15	mg / l
CaCO3	Min 50; Max 150	ppm
Trisodium phosphate	None	ppm
Chlorine	<100	ppm
Electrical conductivity	<200	microsiemens / cm
Pressure	Min 0.6; Max 6	bar
Glycol	Max 40% (only propylene glycol)	%

All the data in the table refer to the water contained in the system after 8 weeks' operation.

Do not use excessively softened water. Excessive water softening (total hardness < 5° f) results in corrosion due to contact with metal elements (pipes or thermal module components).

Immediately repair any leaks or drips that could result in air entering the system.

Excessive pressure fluctuations can cause stress and fatigue to the heat exchanger.

Maintain a constant operating pressure.

Water used to fill a system for the first time and water used to top it up must always be filtered (using synthetic or metal mesh filters with a filtration rating of no less than 50 microns) to prevent sludge from forming and triggering deposit corrosion. If oxygen enters a circuit continuously or even intermittently (e.g. in under-floor heating systems whose pipes are not protected by impermeable synthetic sheaths, in circuits with open expansion vessels, or in circuits that require frequent top-ups) always separate the boiler's water circuit from the central heating circuit.

It is prohibited to top up the heating system constantly or frequently, since this can damage the thermal module's heat exchanger. The use of automatic topping up systems should be avoided for this reason.

To sum up, in order to eliminate contact between air and water (and to prevent the latter from becoming oxidized), it is necessary:

- that the expansion system be a closed vessel, correctly sized and with the correct pre-loading pressure (to be regularly checked);
- that the system be always at a pressure higher than the atmospheric one at any point (including the pump suction side) and under any operating conditions (all seals and hydraulic couplings in a system are designed to withstand pressure towards the outside, but not underpressure);
- the installation be not made with gas-permeable materials (e.g. plastic pipes without oxygen barrier for underfloor heating systems).

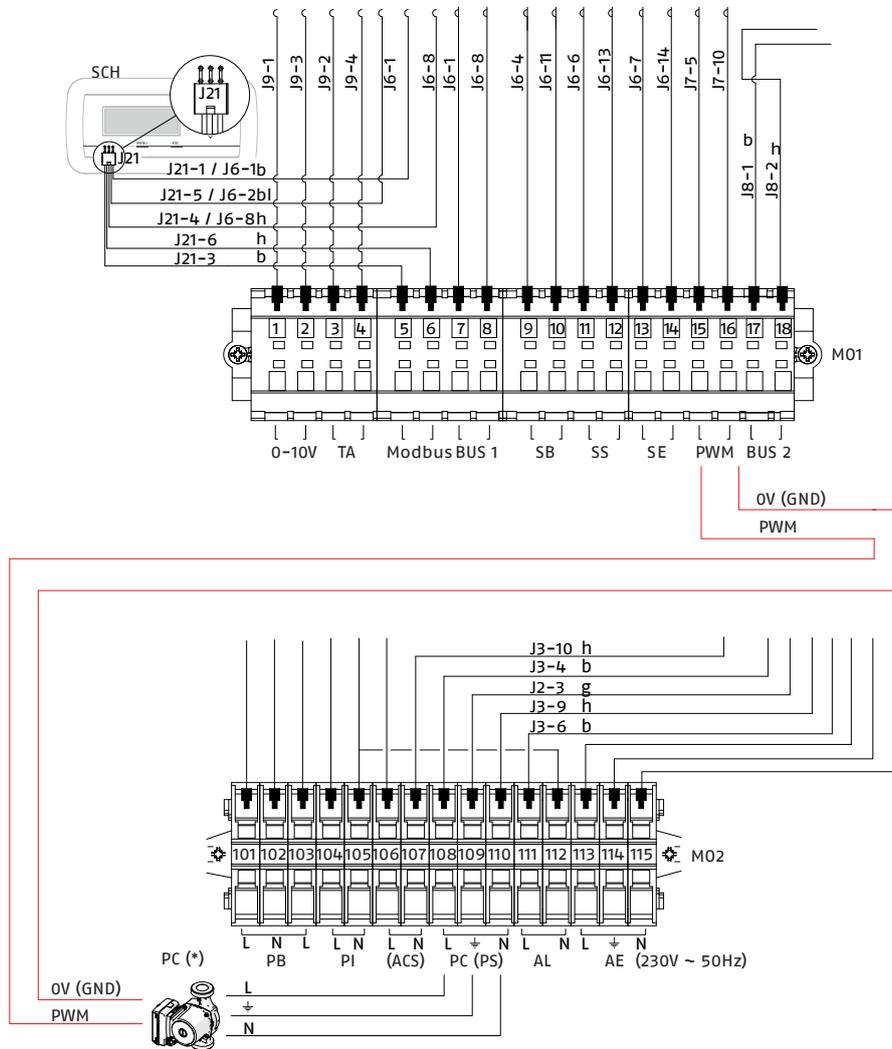
Damages suffered by the thermal module, caused by encrustations and corrosion, are not covered by warranty.

CONDENSING GENERATORS

Wall-hung gas condensing modules

ELECTRICAL WIRING

The injection pumps are piloted with PWM signal to work with constant ΔT .



- Key**
- SCH display PCB and controls
 - M01 Low voltage terminal block, 1-10 V input
 - TA Room thermostat/ heat request
 - EA Ignition electrode
 - Modbus Modbus output
 - SB Tank probe (acc.)
 - SS System probe (acc.)
 - SE External probe (acc.)
 - PWM PWM connection (*)

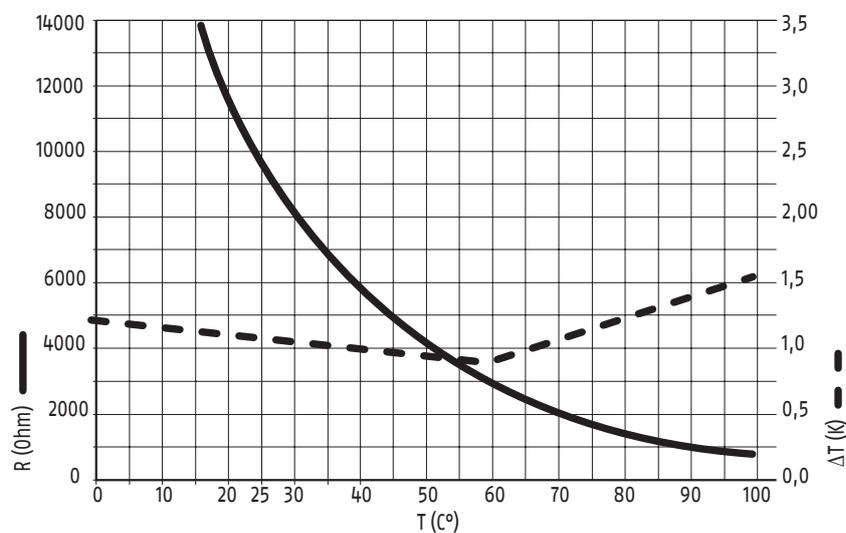
- Key**
- M02 High voltage terminal block
 - PB Boiler circulator / 3-way valve / 2-way valve (**)
 - PI Plant circulator
 - (DHW) Sanitary circulator
 - PC Thermal module circulator (*)
 - PS System circulator (**)
 - AL Alarm output
 - AE Electrical supply

(*) For Condexa PRO 35 P models - Condexa PRO 70 P circulator installed as standard; for others models the circulator is supplied as an accessory with connections to be made by the installer.
 (**) Configuration valid for 2-way system and single pump.

INSTALLING THE EXTERNAL TEMPERATURE PROBE (ACCESSORY)

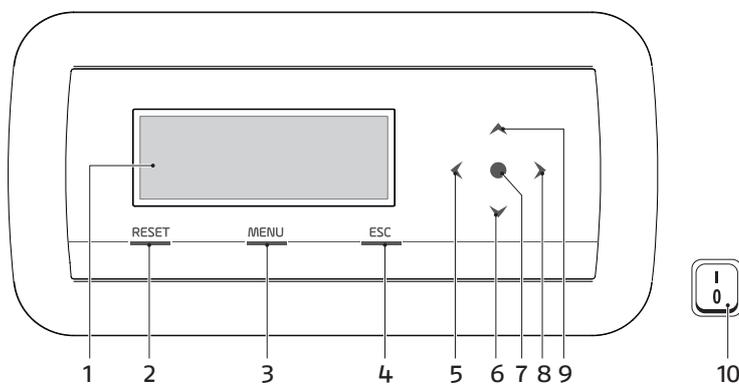
The correct positioning of the external probe is fundamental for the proper functioning of the climate control. The probe must be installed outside the building to be heated, at about 2/3 of the height of the north or north-west facade and away from chimneys, doors, windows and sunny areas. The probe must be placed in a smooth wall stretch; in the case of exposed bricks or irregular walls, a smooth contact area should be provided. The maximum length of the connection between the external probe and the control panel is 50 m. In case of connections with a cable longer than 50 m, check that the value read by the card corresponds to a real measurement and use parameter 39 to make any correction. The connection cable between the probe and the control panel must not have joints; if necessary, it must be tinned and adequately protected. Any ducting of the connection cable must be separated from live cables (230V AC). If the external probe is not connected, parameters 14 and 22 should be set to "0".

Correspondence table valid for all probes



T (°C)	R (°Ω)
0	27396
5	22140
10	17999
15	14716
20	12099
25	10000
30	8308
35	6936
40	5819
45	4904
50	4151
55	3529
60	3012
65	2582
70	2221
80	1663
85	1446
90	1262
95	1105
100	970

CONTROL PANEL



1. 255x80 backlit display (106,4x39,0mm)
2. RESET button: allows operation to be restored after a fault stop
3. MENU button: allows access to the main menu
4. ESC button: in the menu navigation it allows to exit from a menu item and return to the previous one
5. Navigation button ◀
6. Navigation button ▼
7. Navigation button •
8. Navigation button ▶
9. Navigation button ▲
10. Main switch (located on the bottom of the appliance)

CONDENSING GENERATORS

Wall-hung gas condensing modules

DISCHARGE OF COMBUSTION PRODUCTS

The appliance is supplied as standard in type B configuration (B23–B53P–B53P), therefore prepared to draw air directly into the installation room, and can become type C with the use of specific accessories. In this configuration the appliance will draw in air directly from the outside with the possibility of having coaxial or split pipes.

It is essential that only specific pipes for condensing boilers are used for extracting the combustion air and that the connection is made correctly as indicated by the instructions supplied with the smoke accessories. Do not connect the smoke evacuation ducts of this appliance to those of other appliances unless expressly approved by the manufacturer. Failure to comply with this warning may result in accumulation of carbon monoxide which can cause serious personal injury or death.

Ensure that the combustion air (intake air) is not contaminated by:

- waxes/chlorinated detergent
- chemical products based on swimming pool chlorine
- calcium chloride
- sodium chloride used for water softening
- refrigerant leaks
- paint or varnish removal products
- hydrochloric acid / muriatic acid
- cements and glues
- antistatic softeners used in dryers
- chlorine used for domestic or industrial purposes as a detergent
- whitener or solvent
- adhesives used to glue construction products and others
- similar products.

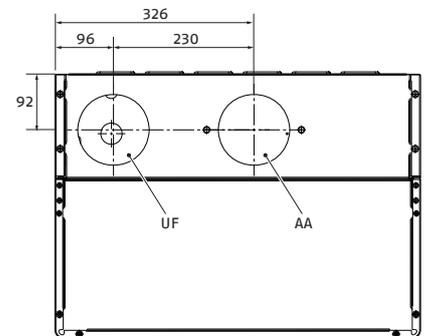
To prevent contamination, do not install suction line air intakes and gas flue extraction pipes near:

- dry-cleaners/laundry rooms and factories
- pools
- metallurgy processing plants
- beauty parlours
- fridge repair shops
- photo processing facilities
- body-shops
- plastics manufacturing plants
- furniture workshops and manufacturing plants.

The exhaust duct and the fumes connection must be made in compliance with the standards, current legislation and local regulations.

The use of rigid ducts that are resistant to temperature, condensation, mechanical stress and tightness is mandatory.

Non-insulated exhaust ducts are potential sources of danger.



DESCRIPTION	Condexa PRO 35 P	Condexa PRO 50 P	Condexa PRO 57 P	Condexa PRO 70 P	Condexa PRO 90	
UF (fumes outlet)	DN80	DN80	DN80	DN80	DN110	∅
AA (air intake)	DN80	DN80	DN80	DN80	DN110	∅

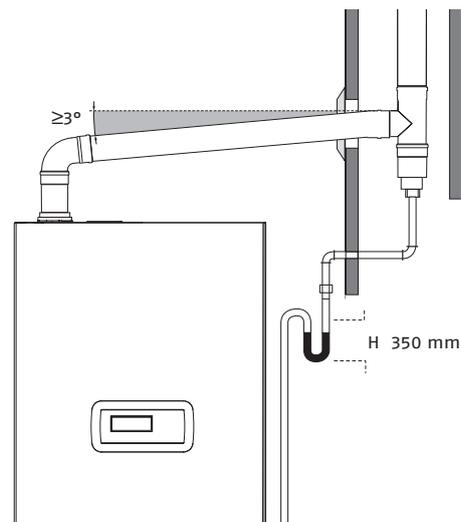
DESCRIPTION	Condexa PRO 100	Condexa PRO 115	Condexa PRO 135	
UF (fumes outlet)	DN110	DN110	DN110	∅
AA (air intake)	DN110	DN110	DN110	∅

In case of type B installation, the combustion air is taken from the environment and passes through the openings (jalousies) made on the back panel of the appliance which must be located in an appropriate technical room and provided with ventilation. Check that condensation does not build up along the duct. For this purpose, provide a sloping duct of at least 3° towards the appliance in the presence of a horizontal section. If the horizontal or vertical section is longer than 4 meters, it is necessary to provide a siphoned drainage of the condensate at the foot of the pipe. The useful height of the siphon must be at least the value "H" shown in the table. The drain of the siphon must therefore be connected to the sewerage system.

For changes of direction, use a T-fitting with an inspection cap which allows easy periodic cleaning of the pipes.

Always make sure that after cleaning the inspection plugs are hermetically closed with the relative seal intact.

Description	Discharge head	
	Max	Min
Condexa PRO 35 P	300	45
Condexa PRO 50 P	480	45
Condexa PRO 57 P	510	35
Condexa PRO 70 P	630	35
Condexa PRO 90	560	32
Condexa PRO 100	610	32
Condexa PRO 115	500	30
Condexa PRO 135	353	28



ACCESSORIES FOR STAND ALONE INSTALLATION

GUIDE TO SYSTEM CONFIGURATION WITH STAND ALONE BOILER AND ACCESSORIES SELECTION



1. ACCESSORIES TO COMPLETE THE SYSTEM

2. OPTIONAL ACCESSORIES

2.1 Injection pumps

2.2 Additional safety devices

2.3 Hydraulic separator or plate heat exchanger

2.4 Secondary circuit management

2.5 Indoor / outdoor installation

2.6 Type of combustion chamber open or sealed chamber

2.7 Flue system

2.8 Treatment system for neutralising condensate

CONDENSING GENERATORS

Wall-hung gas condensing modules

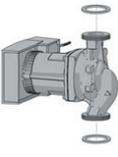
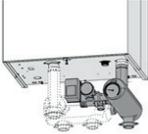
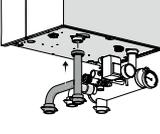
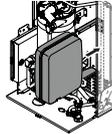
Image	Description	CONDEXA PRO							
		35 P	50 P	57 P	70 P	90	100	115	135
1. ACCESSORIES TO COMPLETE THE SYSTEM									
	External probe: it contains a probe to be installed in external environment, model: NTC 10 kOhm@25°C, used for the climatic mode of operation. N.1 probe for each cascade system, to be wired in the Master boiler.	•	•	•	•	•	•	•	•
	Condensate discharge kit for stand alone installation: condensate discharge for single Condexa PRO 57÷135. Discharge system with float for condensing boilers. It contains: • Syphon group • corrugated tube • support bracket. NB: models 35 P and 50 P are already equipped (as standard) with condensate drain syphon.	•	•	•	•	•	•	•	•
2. OPTIONAL ACCESSORIES									
2.1 Injection pumps									
For models 90-135 (not necessary for models 35-70 - pump already on board)									
	Low consumption injection pump kit up to 90/100/115 kW : to be ordered for each boiler of the cascade system (q.ty = n°boilers); pump to be installed inside the boiler, equipped with cable for connection to the boiler). Performance: High head for Condexa PRO 90-100 (370 mbar with DT=20°C). Standard head for Condexa PRO 115 (70 mbar with DT=20°C).					•	•	•	
	Low consumption injection pump kit up to 115/135 kW: to be ordered for each boiler of the cascade system (q.ty = n°boilers); pump to be installed inside the boiler, equipped with cable for connection to the boiler). Performance: High head for Condexa PRO 90 -100 (620 mbar with DT=20°C) High head for Condexa PRO 115 (270 mbar with DT=20°C) Standard head for Condexa PRO 135 (10 mbar with DT=20°C).							•	•
	Low consumption injection pump kit up to 135 kW : to be ordered for each boiler of the cascade system (q.ty = n°boilers); pump to be installed outside (using dedicated pipes) the boiler, equipped with cable for connection to the boiler). Performance: High head for Condexa PRO 90 -100 (1050 mbar with DT=20°C) High head for Condexa PRO 115 (800 mbar with DT=20°C) High head for Condexa PRO 135 (570 mbar with DT=20°C)								•
2.2 Safety devices									
	Manifold kit with safety devices for stand alone installation: flow manifold and housing of the safety devices for Condexa PRO 50÷135 stand alone installations. Accessory suitable for indoor and outdoor installation; it is installed in the area below the boiler, allowing a considerable saving of the space occupied. Kit composed with 3" manifold, insulation and the safety devices listed below: • Bourdon spring pressure gauge • Safety pressure switch for manifold • Thermometer 0-120 ° C 1/2 " G. • Safety valve VST 1/2 " x 3/4 " 5.4 bar • Gas shutting valve (VIC) suitable up to 135 kW		•	•	•	•	•	•	•
	Safety valve 5,4 bar ØG. 3/4" FF: safety valve Ø3/4"G FF. CE approved: Model: KRAMER SRP / FD 3/4 Setting pressure: 5.4 bar Flow coefficient: K = 0.5 Net cross section: A = 2,27cm ² Pressure factor: F = 0.61 Unloading capacity: Q = 338 kg / h Max. output (kW) To be used ONLY in Italy with the Condexa PRO 35 P model	•							
	Hydraulic separator connection kit for stand alone boiler: flow connection pipe for Condexa PRO 35 P. Accessory suitable for indoor and outdoor installation; it is installed in the area below the boiler, allowing a considerable saving of the space occupied. Complete with insulation, contains flow connections for both heating and DHW circuit.	•							

Image	Description	CONDEXA PRO							
		35 P	50 P	57 P	70 P	90	100	115	135
2.3 Hydraulic separator or plate heat exchanger									
	<p>Horizontal hydraulic separator kit for stand alone boiler: 4" hydraulic separator with insulation, for Condexa PRO 35÷135 stand alone installation. It allows the hydraulic separation between the primary circuit and the secondary circuit, balancing the differences in flow between the circuits.</p> <p>This device is necessary on systems equipped with control of zones by means of thermostatic valves, in which the condition of "zero" flow on the secondary circuit can be verified.</p> <p>Accessory suitable for indoor and outdoor installation; it is installed in the area below the boiler, allowing a considerable saving of the space occupied.</p> <p>This kit (combined with the safety manifold or with the connector-to-the hydraulic separator manifold) acts as a compensator / manifold reducing installation costs; therefore it allows to have 2 flows (1 for the installation and 1 for the storage tank) and 2 returns.</p>	•	•	•	•	•	•	•	•
	<p>Plate heat exchanger kit for 35-50 stand alone boiler: it consisting of a braze-welded plate heat exchanger sized with $\Delta T_{mi} = 7.2^\circ C$, support bracket and connections to the boiler. This kit requires the installation of the support frame kit.</p>	•	•						
	<p>Plate heat exchanger kit for 57-70 stand alone boiler: it consisting of a braze-welded plate heat exchanger sized with $\Delta T_{mi} = 7.2^\circ C$, support bracket and connections to the boiler with a manifold for three way valve installation (accessory). This kit requires the installation of the support frame kit.</p>			•	•				
	<p>Plate heat exchanger kit for 90-100 stand alone boiler: it consisting of a braze-welded plate heat exchanger sized with $\Delta T_{mi} = 7.2^\circ C$, support bracket and connections to the boiler with a manifold for three way valve installation (accessory). This kit requires the installation of the support frame kit.</p>					•	•		
	<p>Plate heat exchanger kit for 115 stand alone boiler: it consisting of a braze-welded plate heat exchanger sized with $\Delta T_{mi} = 7.2^\circ C$, support bracket and connections to the boiler with a manifold for three way valve installation (accessory). This kit requires the installation of the support frame kit.</p>							•	
	<p>Plate heat exchanger kit for 135 stand alone boiler: it consisting of a braze-welded plate heat exchanger sized with $\Delta T_{mi} = 7.2^\circ C$, support bracket and connections to the boiler with a manifold for the installation of the external pump (accessory) and another one for the three way valve installation (accessory). This kit requires the installation of the support frame kit.</p>								•
	<p>Flow / return connection kit for 35-135 "direct" installation: piping for the "direct" connection to the secondary system (for Condexa PRO models 35÷135). The kit is suitable for systems where no hydraulic separator is required.</p> <p>It contains both flow/return connections for the heating circuit and return connection for DHW circuit</p>	•	•	•	•	•	•	•	•
	<p>Expansion vessel kit for 35-50 stand alone boiler: 18 l expansion vessel with pipes (3/4" M connection) and connection brackets for the installation inside the boiler casing</p>	•	•						

CONDENSING GENERATORS

Wall-hung gas condensing modules

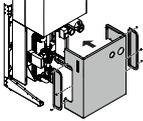
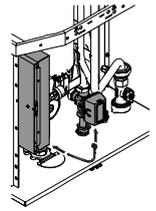
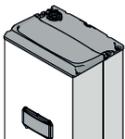
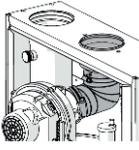
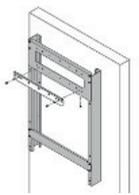
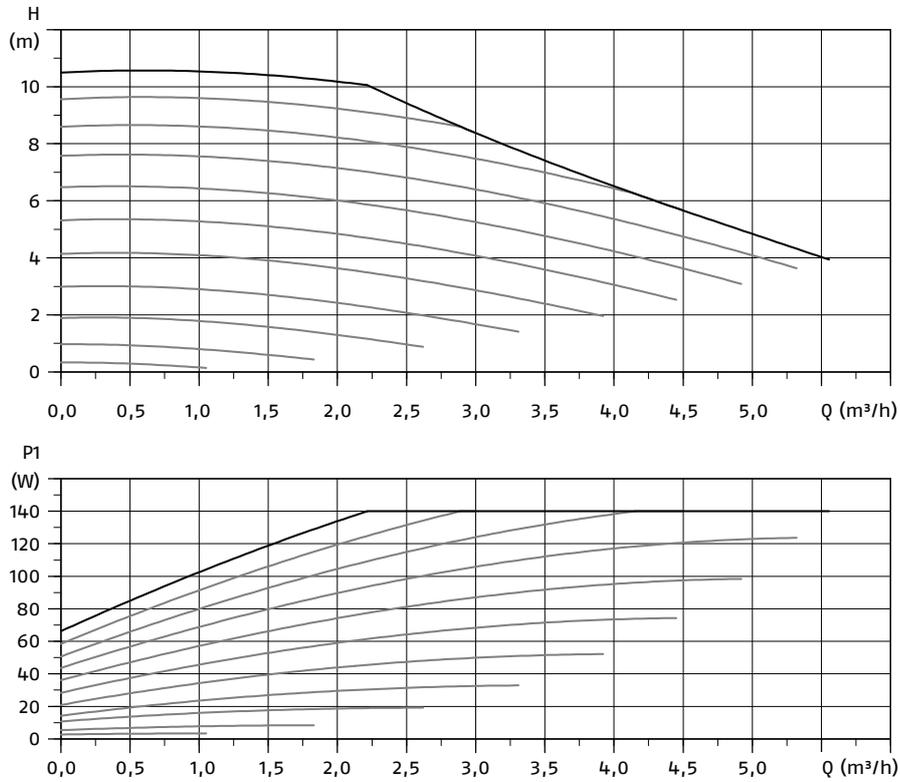
Image	Description	CONDEXA PRO							
		35 P	50 P	57 P	70 P	90	100	115	135
	Cover for plate heat exchanger : painted metal sheet that protects the plate heat exchanger (and the eventual external pump for 135 models) in the "outdoor" installations. The cover requires the support frame.	•	•	•	•	•	•	•	•
	Cover for Safety kit/hydraulic separator for stand alone boiler : painted metal sheet that protects both the safety manifold and the hydraulic separator in the "outdoor" installations.	•	•	•	•	•	•	•	•
	Frame kit for front cascades : it contains all the panels (and screws) needed to install the boiler support frame (this kit can be used for all Condexa PRO boiler range) .	•	•	•	•	•	•	•	•
2.4 Secondary circuit management									
	Secondary/tank probe : NTC probe for temperature control both for the tank circuit and for the heating circuit. Cable length: 2200 mm.	•	•	•	•	•	•	•	•
	3-way valve kit for domestic hot water production 35/45 : 3-way valve (1" M - kvs = 8.6) to be installed on the boiler return (inside the casing). The kit includes fittings, gaskets, servomotor and electric control cable	•							
	Electronic management kit for single direct or additional mixed zone (max 16) : kit for the management of additional heating zone, direct or mixed. It consists of an electronic control device completely wired to the terminal board, installed on a DIN bar so that it can be installed in a box in the electrical control panel in the central heating. The electronic module is connected to the boiler board by means of a communication bus and allows the management of the zone with a dedicated climatic curve. Features: - Direct or mixed zone control - Three way valve management - Zone circulation pump control - Input for TA or OT probe	•	•	•	•	•	•	•	•
2.5 Outdoor installation									
	IPX5D kit for outdoor installation 35 ÷ 70 : kit for outdoor boiler installation, without roof cover. It raises the degree of electrical protection to IPX5D Composed by: • rainproof top (formed by two pieces, to allow disassembly of the front panel of the boiler); • protective cover for the display; • stainless steel pipe for flue gas outlet connection with external flues manifolds	•	•	•	•				
	IPX5D kit for outdoor installation 90 ÷ 135 : kit for outdoor boiler installation, without roof cover. It raises the degree of electrical protection to IPX5D Composed by: • rainproof top (formed by two pieces, to allow disassembly of the front panel of the boiler); • protective cover for the display; • stainless steel pipe for flue gas outlet connection with external flues manifolds					•	•	•	•

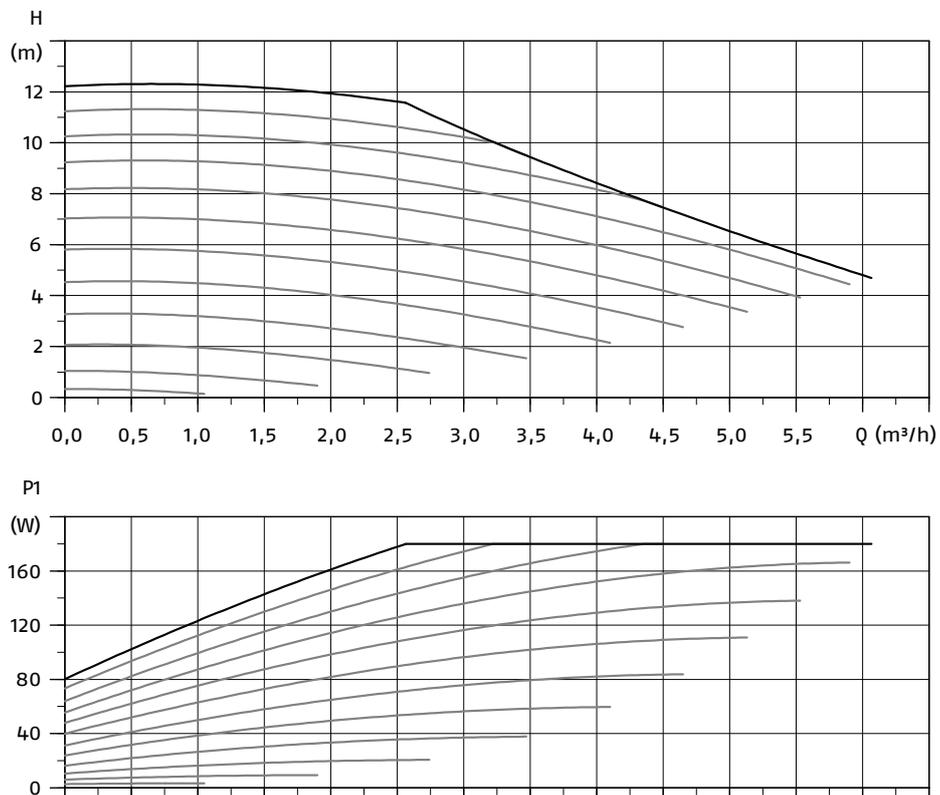
Image	Description	CONDEXA PRO							
		35 P	50 P	57 P	70 P	90	100	115	135
2.6 Sealed combustion transformation kit (type C)									
	<p>Type C/35-70 conversion kit: kit used for sealed combustion (type C) for 35÷70 Condexa PRO models.</p> <p>In cases where the boiler must be made watertight with respect to the environment. It is not mandatory in cases falling within the DM 12/04/1996. This accessory allows the connection of the boiler to the split ø80 mm flue discharge/air duct.</p> <p>Composed by:</p> <ul style="list-style-type: none"> • ø80 mm fitting for combustion air duct • connection pipe with fan connection • air duct pressure detection tube 	•	•	•	•				
	<p>Type C/90-135 conversion kit: kit used for sealed combustion (type C) for 90÷135 Condexa PRO models.</p> <p>Suitable for cases in which the boiler must be made sealed with respect to the environment. It is not mandatory in cases falling within the DM 12/04/1996. This accessory allows the connection of the boiler to the split ø80 mm flue discharge/air duct.</p> <p>Composed by:</p> <ul style="list-style-type: none"> • ø110 mm fitting for combustion air duct • connection pipe with fan connection • air duct pressure detection tube 					•	•	•	•
2.7 Flue system									
	<p>Spacer kit for fixing to wall: frame kit to anchor and distance the boiler from the wall. For Condexa PRO 35÷135 stand alone installation.</p> <p>The frame is necessary if you want to make the concentric ejection directly to the back side, to the wall; in this case the kit creates the necessary space for the concentric curve and the insertion of the straight section.</p> <p>This accessory also allows the boiler to be fixed in the presence of irregular walls.</p>	•	•	•	•	•	•	•	•
2.8 Treatment systems for neutralising condensate									
	<p>HN2 neutralizer kit up to 280 kW: HN2 type condensate neutraliser for condensing gas boilers up to 270 kW.</p> <p>The system allows to increase the pH of the condensate deriving from the exhaust fumes of condensing boilers to values between 6.5 and 9 to allow their disposal through the common sewer system.</p> <p>The kit is suitable for those systems equipped with a condensate drain in the thermal plant located higher than the condensate discharge of the boiler.</p> <p>The maximum head that the pump can win is given by its own maximum head, less the resistance offered by the discharge pipe.</p> <p>The pump is controlled by an electrical level contact. The electrical connections have an IP54 electrical protection rating.</p>	•	•	•	•	•	•	•	•
	<p>N2 neutralizer kit up to 450 kW: N2 type condensate neutraliser for condensing gas boilers up to 450 kW.</p> <p>The system allows to increase the pH of the condensate deriving from the exhaust fumes of condensing boilers to values between 6.5 and 9 to allow their disposal through the common sewer system.</p> <p>The kit is designed for systems equipped with a condensate drain trap in the thermal plant located lower than the boiler condensate drain and which therefore has a natural slope. Therefore, they do not require a pump and relative electrical connections.</p>	•	•	•	•	•	•	•	•
COMPLEMENTS FOR MAINTENANCE AND SERVICE									
For all models 35-135 - for stand-alone boilers and cascade systems									
	<p>PC interface kit: accessory dedicated to the service which consists of a connection interface (and in the relative PC program) to connect the PC to the boilers directly on the communication BUS.</p> <p>It allows diagnosis to be made based on the generator operating history and its calibration (possibility of accessing all the parameters and changing them in real time).</p>	•	•	•	•	•	•	•	•

INJECTION PUMP CURVES (ACCESSORY)

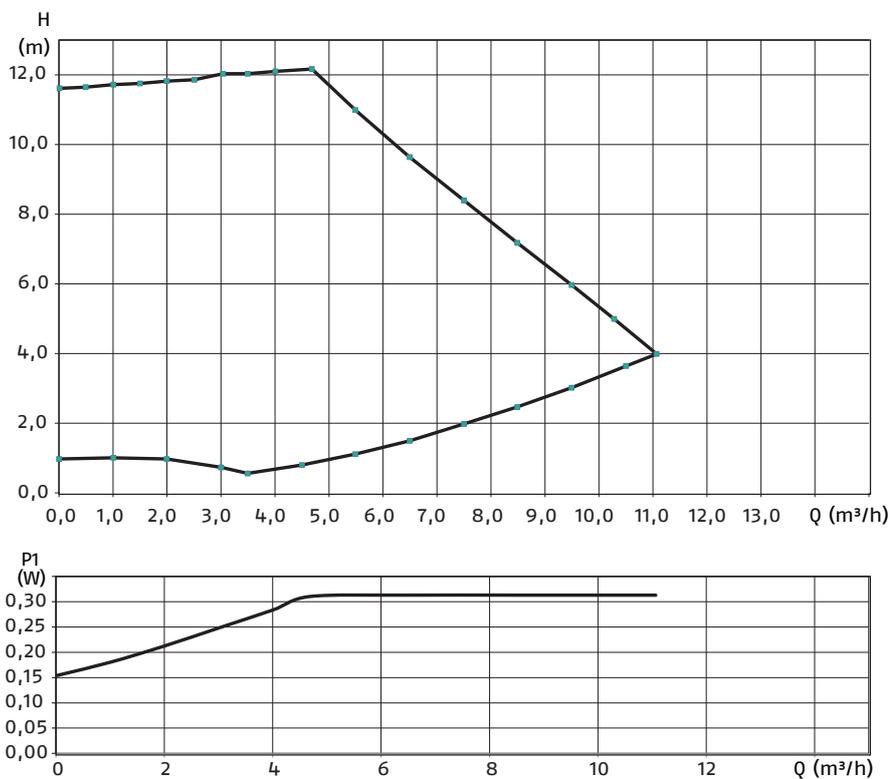
90-100-115 kW models



115 kW / low prevalence 135kW models



135 kW high head models

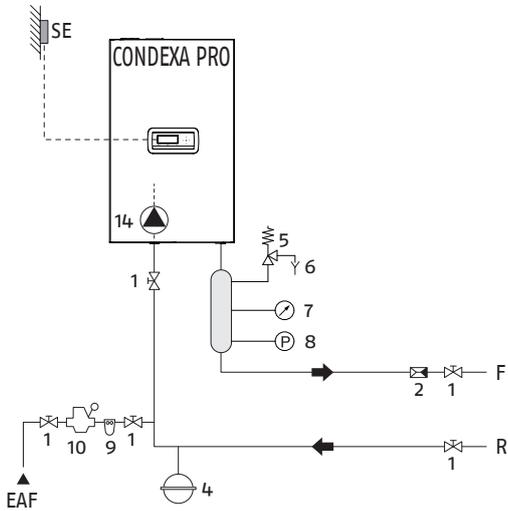


CONDENSING GENERATORS

Wall-hung gas condensing modules

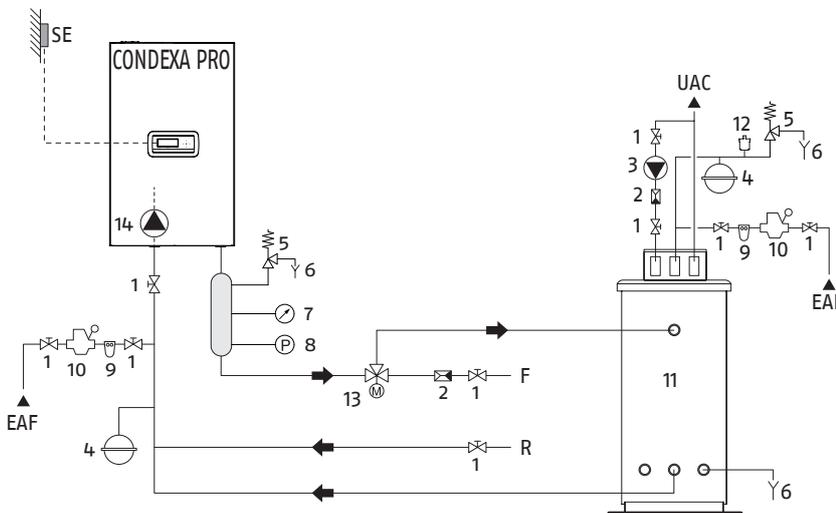
HYDRAULIC SYSTEM

Scheme 1: circuit with thermal module connected directly to the heating system (check that the pump head is sufficient to ensure adequate circulation)



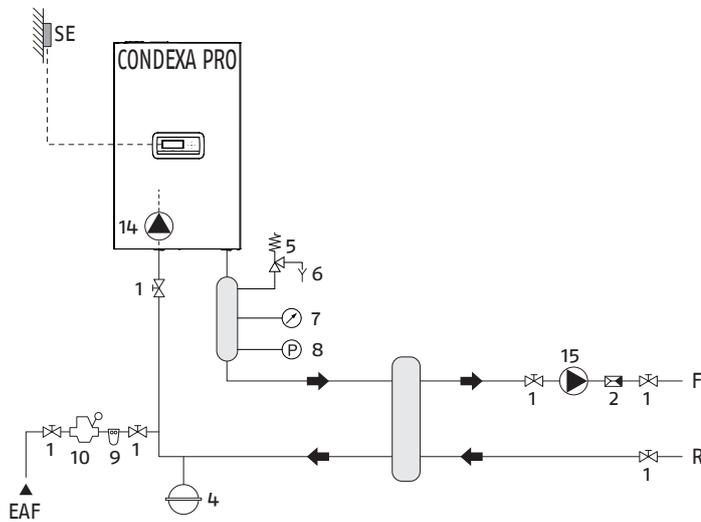
- 1. Globe valve
 - 2. Non-return valve
 - 3. Sanitary circulator
 - 4. Expansion vessel
 - 5. Safety valve
 - 6. Discharge
 - 7. Pressure gauge
 - 8. Pressure switch
 - 9. Softener filter
 - 10. Pressure reducer
 - 11. Tank
 - 12. Automatic bleed valve
 - 13. Three way valve
 - 14. Circulator (standard for Condexa PRO 35P, 50P, 57P and 70P)
- SE External probe
 F High temperature system flow
 R High temperature system return
 EAF Cold water inlet
 UAC Domestic hot water outlet

Scheme 2: circuit with thermal module connected directly to the heating system and DHW tank (check that the pump head is sufficient to ensure adequate circulation)



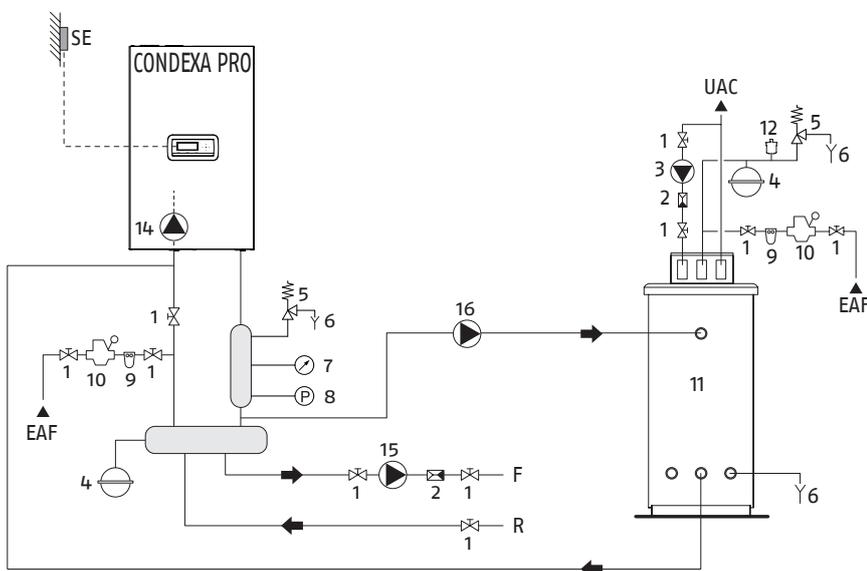
- 1. Globe valve
 - 2. Non-return valve
 - 3. Sanitary circulator
 - 4. Expansion vessel
 - 5. Safety valve
 - 6. Discharge
 - 7. Pressure gauge
 - 8. Pressure switch
 - 9. Softener filter
 - 10. Pressure reducer
 - 11. Tank
 - 12. Automatic bleed valve
 - 13. Three way valve
 - 14. Circulator (standard for Condexa PRO 35P, 50P, 57P and 70P)
- SE External probe
 F High temperature system flow
 R High temperature system return
 EAF Cold water inlet
 UAC Domestic hot water outlet

Scheme 3: circuit with thermal module connected to a heating system via a separator (in this case the boiler pump only serves to ensure circulation in the primary)



- 1. Globe valve
- 2. Non-return valve
- 3. Sanitary circulator
- 4. Expansion vessel
- 5. Safety valve
- 6. Discharge
- 7. Pressure gauge
- 8. Pressure switch
- 9. Softener filter
- 10. Pressure reducer
- 11. Tank
- 12. Automatic bleed valve
- 13. Three way valve
- 14. Circulator (standard for Condexa PRO 35P, 50P, 57P and 70P)
- 15. High-temperature system circulator
- 16. Tank circulator
- SE External probe
- F High temperature system flow
- R High temperature system return
- EAF Cold water inlet
- UAC Domestic hot water outlet

Scheme 4: circuit with thermal module connected with DHW tank and with heating system by means of hydraulic separator

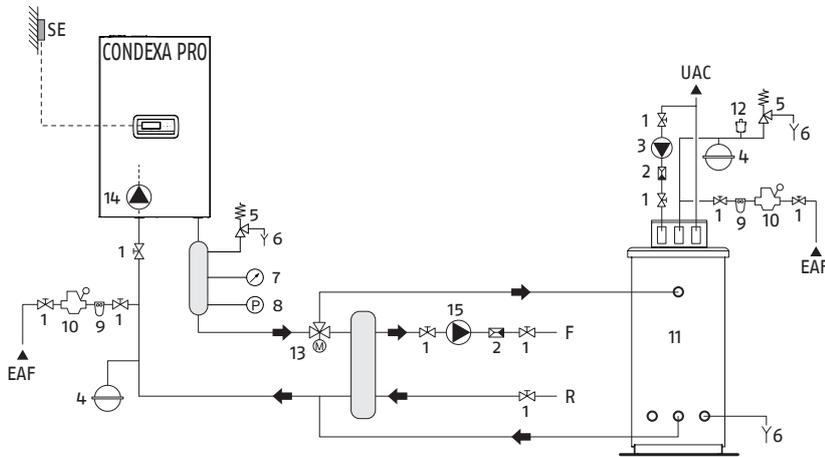


- 1. Globe valve
- 2. Non-return valve
- 3. Sanitary circulator
- 4. Expansion vessel
- 5. Safety valve
- 6. Discharge
- 7. Pressure gauge
- 8. Pressure switch
- 9. Softener filter
- 10. Pressure reducer
- 11. Tank
- 12. Automatic bleed valve
- 13. Three way valve
- 14. Circulator (standard for Condexa PRO 35P, 50P, 57P and 70P)
- 15. High-temperature system circulator
- 16. Tank circulator
- SE External probe
- F High temperature system flow
- R High temperature system return
- EAF Cold water inlet
- UAC Domestic hot water outlet

CONDENSING GENERATORS

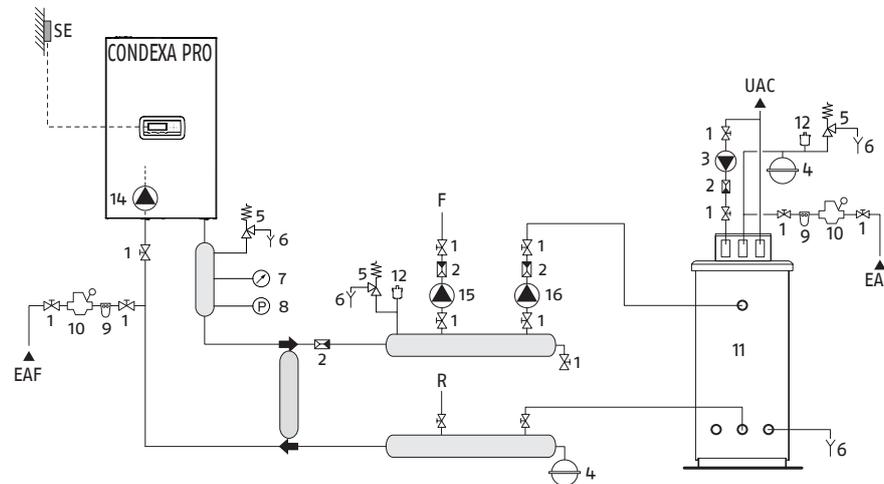
Wall-hung gas condensing modules

Scheme 5: circuit with thermal module connected with heating system and DHW tank by means of hydraulic separator (the boiler pump ensure only circulation in the primary).



1. Globe valve
2. Non-return valve
3. Sanitary circulator
4. Expansion vessel
5. Safety valve
6. Discharge
7. Pressure gauge
8. Pressure switch
9. Softener filter
10. Pressure reducer
11. Tank
12. Automatic bleed valve
13. Three way valve
14. Circulator (standard for Condexa PRO 35P, 50P, 57P and 70P)
15. High-temperature system circulator
16. Tank circulator
- SE External probe
- F High temperature system flow
- R High temperature system return
- EAF Cold water inlet
- UAC Domestic hot water outlet

Scheme 6: circuit with thermal module connected with heating system and DHW tank with collector (DHW and heating simultaneous production). System to be installed only with low head pumps.



1. Globe valve
2. Non-return valve
3. Sanitary circulator
4. Expansion vessel
5. Safety valve
6. Discharge
7. Pressure gauge
8. Pressure switch
9. Softener filter
10. Pressure reducer
11. Tank
12. Automatic bleed valve
13. Three way valve
14. Circulator (standard for Condexa PRO 35P, 50P, 57P and 70P)
15. High-temperature system circulator
16. Tank circulator
- SE External probe
- F High temperature system flow
- R High temperature system return
- EAF Cold water inlet
- UAC Domestic hot water outlet

Domestic hot water and central heating circuits must be completed with expansion vessels of adequate capacity and suitable, correctly-sized safety valves.

The discharge of safety valves and appliances must be connected to a suitable collection and disposal system. The choice of system components and the method of their installation are left up to the heating engineer installing the system. Installers must use their expertise to ensure proper installation and functioning in conformity to all applicable legislation. Special supply/refill water must be conditioned using suitable treatment systems. It is prohibited to operate the thermal module without water.

DESCRIPTION FOR SPECIFICATIONS

Condexa PRO is a pre-mixed condensing thermal module, consisting of a modulating thermal element.

It is available in 8 models, starting from 35 kW up to 131kW.

The optimal combustion management allows high efficiency up to over 109%, value calculated on the PCI, in the condensation regime, and low polluting emissions – Class 6 according to UNI EN 15502-1.

The thermal module is designed for open chamber operation, but can be converted to a sealed chamber using the appropriate accessory. The standard configuration device is intended for indoor installation ensuring IPX4D protection degree. It is possible to install the appliance on the outside by combining it with a special accessory that elevates its electrical protection up to IPX5D.

Condexa PRO boiler can be connected in cascade up to a maximum power of 1.12 MW.

The main technical features of the appliance are:

- Premixing burner with constant air-gas ratio;
- Heat exchanger with patented geometries, consisting of two smooth concentric stainless steel tubes, each having a pentagonal section inside and a circular outside, designed to maximize the exchange surface, offer maximum corrosion resistance and the possibility of working with high ΔT (up to 40°C) reducing set-up times;
- Module power from 35 to 131 kW, with possible cascades of modules with the same power
- Maximum fumes outlet temperature 100°C;
- Microprocessor management and control with self-diagnosis shown through display and recording of the main errors;
- Anti-freeze function;
- External probe that enables climatic operation (accessory);
- Condensate drain syphon to avoid backflow of exhaust fumes into the environment (standard for 35 P and 50 P, accessory for other models)
- Predisposition for room thermostat/heat request on high and low temperature zones;
- Possibility to manage both a heating circuit and a circuit for the production of domestic hot water with storage;
- High efficiency and high residual head circulator for models up to 70 kW; for the other models, a circulator is available as an optional accessory.

SAFETY DEVICES

All the functions of the device are electronically controlled by a card approved to perform safety functions by means of a dual processor technology. Any anomaly causes the appliance stop and the gas valve automatic shutdown.

The following are installed on the water circuit:

- Safety thermostat;
- Flowmeter capable of checking continuously the flow rate of the primary circuit and causing the appliance stop in case of insufficient flow;
- Temperature probes on the flow and return that continuously measure the temperature difference between the flow and return fluid and allow the control to intervene;
- Minimum pressure switch.

The following are installed on the combustion circuit:

- Gas solenoid valve in class B + C, with pneumatic compensation of the gas flow according to the suction air flow rate;
- Ionization electrode for detection;
- Flue temperature probe;
- Smoke-exhaust flue non-return valve to avoid backflow in central heating (mandatory optional for 35 P, 50 P models, standard for other models).

The triggering of safety devices indicates the malfunction of a potentially hazardous thermal module. Therefore, contact Technical Assistance Service immediately. After a brief pause, it is possible to try and restart the appliance (see Paragraph "Initial startup").

Safety devices must be replaced by Technical Assistance Service, using only original parts. Refer to the spare parts catalogue supplied with the appliance. After making the repair, check that the appliance is working properly.

The appliance must not be put in service, even temporarily, when tampered safety devices are not in operation or have been tampered with.

The Condexa PRO thermal modules comply with:

- Regulation (EU) 2016/426
- Directive 92/42/EEC on efficiency requirements and Annex E and Pres. Republic Decree n. 412, 26 August 1993 (****)
- Electromagnetic Compatibility Directive 2014/30/EU
- Low Voltage Directive 2014/35/EU
- Ecodesign Directive 2009/125/CE for energy-related products
- Regulation (EU) 2017/1369 Energy labelling
- Delegated Regulation (EU) No. 811/2013;
- Delegated Regulation (EU) No. 813/2013;
- Standard for gas-fired heating boilers – General requirements and tests – EN 15502-1
- Specific standard for type C appliances and type B2, B3 and B5 appliances of nominal heat input not exceeding 1000 kW – EN 15502-2/1
- SSIGA G1 gas directive
- AICAA Fire regulations
- CFST GPL directive part 2;
- Various cantonal and communal provisions on air quality and energy saving.

CONDENSING GENERATORS

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The Condexa PRO thermal module is supplied on a pallet, packed and protected by cardboard.

Inserted in a plastic bag placed inside the packaging, the following material is provided:

- Instruction booklet
- LPG conversion kit
- Bracket for wall fixing with dowels (n°4 dowels, d = 10mm, suitable for concrete, bricks, compact stone, perforated concrete block walls);
- Hydraulic test certificate
- Energy Label (for models <70kW).



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The manufacturer strives to continuously improve all products. Appearance, dimensions, technical specifications, standard equipment and accessories are therefore liable to modification without notice.

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