

1. GENERAL FEATURES



The range of thermal generators of the “High Power” series for outdoor installation is available in the following three outputs 50 and 100 kW, with $\varnothing$ 28 mm stainless steel heat exchanger, to satisfy the power increase requests in an extremely limited space. Boilers are designed to suit individual or cascade installations, one independent of each other.

The FCM 50 model is a boiler equipped with one heat exchanger, while the FCM 100 model is boiler equipped with two heat exchangers made by a $\varnothing$ 28 mm stainless steel spiral single pipe, fitted in a single casing. This boiler, in addition to a size advantage, 70 cm wide (100 kW), also offers advantages in terms of power. It can be set up as 100 kW (50 + 50 kW), by offering a great flexibility for the installation of high power cascade systems. It also offers advantages in terms of performances such as a 1:20 (100 kW) modulation, the possibility of excluding one boiler and, in case of one boiler failure, the ability to never leave the system shut down with the other boiler functioning.

The cascade system provides a wide range of heat outputs, from 50 to 500 kW already configured. For outputs higher than 500 kW, please contact our technical department.

The composition of the cascade system provides for the free combination of the individual boilers connected by means of hydraulic manifolds for the gas, flow and return connections.

The F series can be installed either in a boiler room or outside, thus allowing to solve more complex building situations where it is not possible to have a dedicated room that complies with standards in force.

2. PRODUCTS TYPE

GENERAL INDICATIONS

By using the FCM series solution, which previews a cascade installation, the system offers the ideal output solution according to the different needs.

Boilers are in fact designed to suit cascade installations, up to a maximum of 8 boilers for a total output of 800 kW allowing a continuous output modulation, a continuous linear power modulation within a very low percentage of minimum power (depending on the type of boilers adopted and of the system maximum power) and the 100% of the installed power.

POSSIBLE CONFIGURATIONS

Boiler version	FCM 50	FCM 100	HEAT OUTPUT [KW]	
			Min.	Max
F 150	1	1	5	150
F 200		2	5	200
F 250	1	2	5	250
F 300		3	5	300
F 350	1	3	5	350
F 400		4	5	400
F 450	1	4	5	450
F 500		5	5	500

Attention: For outputs higher than 500 kW, please contact our technical department.

3. TECHNICAL DATA

Model		F 150	F 200	F 250	F 300
Compositions		1x50+1x100	2x100	1x50+2x100	3x100
Heat Input max. [C.H.]	MJ/h	594	796	994	1888
Heat Input min. [C.H.]	MJ/h	20	20	20	20
Heat Output max. - 80/60°C	kW	147.56	196.74	245.93	295.11
Heat Output min. - 80/60°C	kW	4.83	4.83	4.83	4.83
Heat Output max. - 50/30°C	kW	160.20	213.60	267.00	320.40
Heat Output max at 30% Heat Input average - return 30°C	kW	8.98	17.14	8.98	17.14
Efficiency at 100% Heat Input - 60/80°C	%	98.37	98.37	98.37	98.37
Heat Input average efficiency - 60/80°C	%	97.88	97.88	97.88	97.88
Efficiency Heat Output min. - 60/80°C	%	96.51	96.51	96.51	96.51
Efficiency at 100% Heat Input - 30/50°C	%	106.80	106.80	106.80	106.80
Efficiency Heat Output min. - 30/50°C	%	105.70	105.70	105.70	105.70
Efficiency at 30% Heat Input average - return 47°C	%	102.80	102.80	102.80	102.80
Efficiency at 30% Heat Input average - return 30°C	%	108.83	108.83	108.83	108.83
Combustion data					
Maximum combustion efficiency	%	97.90	97.90	97.90	97.90
Minimum combustion efficiency	%	98.0	98.0	98.0	98.0
Flue efficiency losses with burner on (Heat Input max.)	%	2.10	2.10	2.10	2.10
Flue efficiency losses with burner on (Heat Input min.)	%	2.0	2.0	2.0	2.0
Flue efficiency losses with burner off	%	0.02	0.02	0.02	0.02
Casing efficiency losses (Heat Input max.)	%	-0.47	-0.47	-0.47	-0.47
Casing efficiency losses (Heat Input min.)	%	1.49	1.49	1.49	1.49
Casing efficiency losses with burner off	%	0.03	0.03	0.03	0.03
Fumes temperature - Heat Input max.	°C	66.4	66.4	66.4	66.4
Fumes temperature - Heat Input min.	°C	56.8	56.8	56.8	56.8
Fumes mass - Heat Input max.	g/s	66.83	89.28	111.47	133.92
Fumes mass - Heat Input min.	g/s	2.28	2.28	2.28	2.28
CO ₂ Heat Input max. - G20	%	9.3-9.0	9.3-9.0	9.3-9.0	9.3-9.0
CO ₂ Heat Input min. - G20	%	9.0-8.8	9.0-8.8	9.0-8.8	9.0-8.8
CO ₂ Heat Input max. - G30	%	11.3-11.1	11.3-11.1	11.3-11.1	11.3-11.1
CO ₂ Heat Input min. - G30	%	10.9-10.7	10.9-10.7	10.9-10.7	10.9-10.7
CO ₂ Heat Input max. - G31	%	10.3-10.1	10.3-10.1	10.3-10.1	10.3-10.1
CO ₂ Heat Input min. - G31	%	9.8-9.6	9.8-9.6	9.8-9.6	9.8-9.6
CO Heat Input max	ppm	68	68	68	68
CO Heat Input max.	ppm	1	1	1	1
Weighted CO [0% O ₂]	ppm	9	9	9	9
NO _x class	class	6	6	6	6
Weighted NO _x [0% O ₂]	mg/kWh	51	51	51	51
Central heating circuit					
Temperature setting - Central heating	°C	30-80/25-45	30-80/25-45	30-80/25-45	30-80/25-45
Max. operating temperature - Central heating	°C	80	80	80	80
Max. operating pressure - Central heating	kPa	300	300	300	300

Model		F 150	F 200	F 250	F 300
Min. operating pressure - Central heating	kPa	30	30	30	30
Primary circuit water content	litres	44	51	69	76
Dimensions					
Width	mm	1289	1542	2096	2349
Depth	mm	582	582	582	582
Height	mm	1455	1455	1455	1455
Gross weight	kg	250	293	350	437
Hydraulic Connections					
C.H. Flow	DN	100	100	100	100
Gas	DN	40	40	40	40
C.H. Return	DN	100	100	100	100
Condensate drain	Ø	40	40	40	40
Flue systems					
Fan - Max. available pressure	Pa	100 ⁽²⁾ ⁽³⁾	100 ⁽³⁾	100 ⁽²⁾ ⁽³⁾	100 ⁽³⁾
Fan - Min. available pressure	Pa	14 ⁽³⁾ - 30 ⁽²⁾	30 ⁽³⁾	14 ⁽³⁾ - 30 ⁽²⁾	30 ⁽³⁾
Max. Flue length Ø80 - Horiz. / Vertical single pipe	m	25 ⁽²⁾	-	25 ⁽²⁾	-
Max. Flue length Ø100 - Horiz. / Vertical single pipe	m	30 ⁽³⁾	30 ⁽³⁾	30 ⁽³⁾	30 ⁽³⁾
Electrical specifications					
Voltage-frequency	V/Hz	250/50	250/50	250/50	250/50
Max Power consumption	W	324	416	540	648
Max Power consumption - boiler pump (100%)	W	165	220	275	330
Electric power with boiler OFF	W	10.5	14	14	21
Protection rating	IP	X5D	X5D	X5D	X5D
Gas supply					
Nominal supply pressure - Natural Gas	kPa	1.13	1.13	1.13	1.13
Heating Max. fan speed - Natural Gas	Hz	247 ⁽¹⁾	247 ⁽¹⁾	247 ⁽¹⁾	247 ⁽¹⁾
Heating Min. fan speed - Natural Gas	Hz	53 ⁽¹⁾	53 ⁽¹⁾	53 ⁽¹⁾	53 ⁽¹⁾
Fuel consumption - Natural Gas	MJ/h	594	792	990	1188
Nominal Supply pressure - Universal LPG	kPa	2.75	2.75	2.75	2.75
Heating Max. fan speed - Natural Gas	Hz	240 ⁽¹⁾	240 ⁽¹⁾	240 ⁽¹⁾	240 ⁽¹⁾
Heating Min. fan speed - Natural Gas	Hz	53 ⁽¹⁾	53 ⁽¹⁾	53 ⁽¹⁾	53 ⁽¹⁾
Fuel consumption - Universal LPG	MJ/h	594	792	990	1188

⁽¹⁾ Single thermal unit

⁽²⁾ Single FCM 50 unit

⁽³⁾ Single FCM 100 unit

Model		F 350	F 400	F 450	F 500
Compositions		1x50+3x100	4x100	1x50+4x100	5x100
Heat Input max. [C.H.]	kW	1390	1592	1790	1988
Heat Input min. [C.H.]	kW	20	20	20	20
Heat Output max. - 80/60°C	kW	147.56	196.74	245.93	295.11
Heat Output min. - 80/60°C	kW	4.83	4.83	4.83	4.83
Heat Output max. - 50/30°C	kW	160.20	213.60	267.00	320.40
Heat Output max at 30% Heat Input average - return 30°C	kW	8.98	17.14	8.98	17.14
Efficiency at 100% Heat Input - 60/80°C	%	98.37	98.37	98.37	98.37
Heat Input average efficiency - 60/80°C	%	97.88	97.88	97.88	97.88
Efficiency Heat Output min. - 60/80°C	%	96.51	96.51	96.51	96.51
Efficiency at 100% Heat Input - 30/50°C	%	106.80	106.80	106.80	106.80
Efficiency Heat Output min. - 30/50°C	%	105.70	105.70	105.70	105.70
Efficiency at 30% Heat Input average - return 47°C	%	102.80	102.80	102.80	102.80
Efficiency at 30% Heat Input average - return 30°C	%	108.83	108.83	108.83	108.83
Combustion data					
Maximum combustion efficiency	%	97.90	97.90	97.90	97.90
Minimum combustion efficiency	%	98.0	98.0	98.0	98.0
Flue efficiency losses with burner on (Heat Input max.)	%	2.10	2.10	2.10	2.10
Flue efficiency losses with burner on (Heat Input min.)	%	2.0	2.0	2.0	2.0
Flue efficiency losses with burner off	%	0.02	0.02	0.02	0.02
Casing efficiency losses (Heat Input max.)	%	-0.47	-0.47	-0.47	-0.47
Casing efficiency losses (Heat Input min.)	%	1.49	1.49	1.49	1.49
Casing efficiency losses with burner off	%	0.03	0.03	0.03	0.03
Fumes temperature - Heat Input max.	°C	66.4	66.4	66.4	66.4
Fumes temperature - Heat Input min.	°C	56.8	56.8	56.8	56.8
Fumes mass - Heat Input max.	g/s	156.11	178.56	200.75	222.94
Fumes mass - Heat Input min.	g/s	2.28	2.28	2.28	2.28
CO ₂ Heat Input max. - G20	%	9.3-9.0	9.3-9.0	9.3-9.0	9.3-9.0
CO ₂ Heat Input min. - G20	%	9.0-8.8	9.0-8.8	9.0-8.8	9.0-8.8
CO ₂ Heat Input max. - G30	%	11.3-11.1	11.3-11.1	11.3-11.1	11.3-11.1
CO ₂ Heat Input min. - G30	%	10.9-10.7	10.9-10.7	10.9-10.7	10.9-10.7
CO ₂ Heat Input max. - G31	%	10.3-10.1	10.3-10.1	10.3-10.1	10.3-10.1
CO ₂ Heat Input min. - G31	%	9.8-9.6	9.8-9.6	9.8-9.6	9.8-9.6
CO Heat Input max	ppm	68	68	68	68
CO Heat Input max.	ppm	1	1	1	1
Weighted CO [0% O ₂]	ppm	9	9	9	9
NO _x class	class	6	6	6	6
Weighted NO _x [0% O ₂]	mg/kWh	51	51	51	51
Central heating circuit					
Temperature setting - Central heating	°C	30-80/25-45	30-80/25-45	30-80/25-45	30-80/25-45
Max. operating temperature - Central heating	°C	80	80	80	80
Max. operating pressure - Central heating	bar	3	3	3	3
Min. operating pressure - Central heating	bar	0.3	0.3	0.3	0.3
Primary circuit water content	litres	76	134	155	168
Dimensions					
Width	mm	2903	3159	3710	3963

Model		F 350	F 400	F 450	F 500
Depth	mm	582	582	582	582
Height	mm	1455	1455	1455	1455
Gross weight	kg	250	293	350	437
Hydraulic Connections					
C.H. Flow	DN	100	100	100	100
Gas	DN	40	40	40	40
C.H. Return	DN	100	100	100	100
Condensate drain	Ø	40	40	40	40
Flue systems					
Fan - Max. available pressure	Pa	100 ⁽²⁾ ⁽³⁾	100 ⁽³⁾	100 ⁽²⁾ ⁽³⁾	100 ⁽³⁾
Fan - Min. available pressure	Pa	14 ⁽³⁾ - 30 ⁽²⁾	30 ⁽³⁾	14 ⁽³⁾ - 30 ⁽²⁾	30 ⁽³⁾
Max. Flue length Ø80 - Horiz. / Vertical single pipe	m	25 ⁽²⁾	-	25 ⁽²⁾	-
Max. Flue length Ø100 - Horiz. / Vertical single pipe	m	30 ⁽³⁾	30 ⁽³⁾	30 ⁽³⁾	30 ⁽³⁾
Electrical specifications					
Voltage-frequency	V/Hz	250/50	250/50	250/50	250/50
Max Power consumption	W	756	864	972	1080
Max Power consumption - boiler pump (100%)	W	385	440	495	550
Electric power with boiler OFF	W	24.5	28	31.5	35
Protection rating	IP	X5D	X5D	X5D	X5D
Gas supply					
Nominal supply pressure - Natural Gas	kPa	1.13	1.13	1.13	1.13
Heating Max. fan speed - Natural Gas	Hz	247 ⁽¹⁾	247 ⁽¹⁾	247 ⁽¹⁾	247 ⁽¹⁾
Heating Min. fan speed - Natural Gas	Hz	53 ⁽¹⁾	53 ⁽¹⁾	53 ⁽¹⁾	53 ⁽¹⁾
Fuel consumption - Natural Gas	MJ/h	1386	1584	1782	1980
Nominal Supply pressure - Universal LPG	kPa	2.75	2.75	2.75	2.75
Heating Max. fan speed - Natural Gas	Hz	240 ⁽¹⁾	240 ⁽¹⁾	240 ⁽¹⁾	240 ⁽¹⁾
Heating Min. fan speed - Natural Gas	Hz	53 ⁽¹⁾	53 ⁽¹⁾	53 ⁽¹⁾	53 ⁽¹⁾
Fuel consumption - Universal LPG	MJ/h	1386	1584	1782	1980

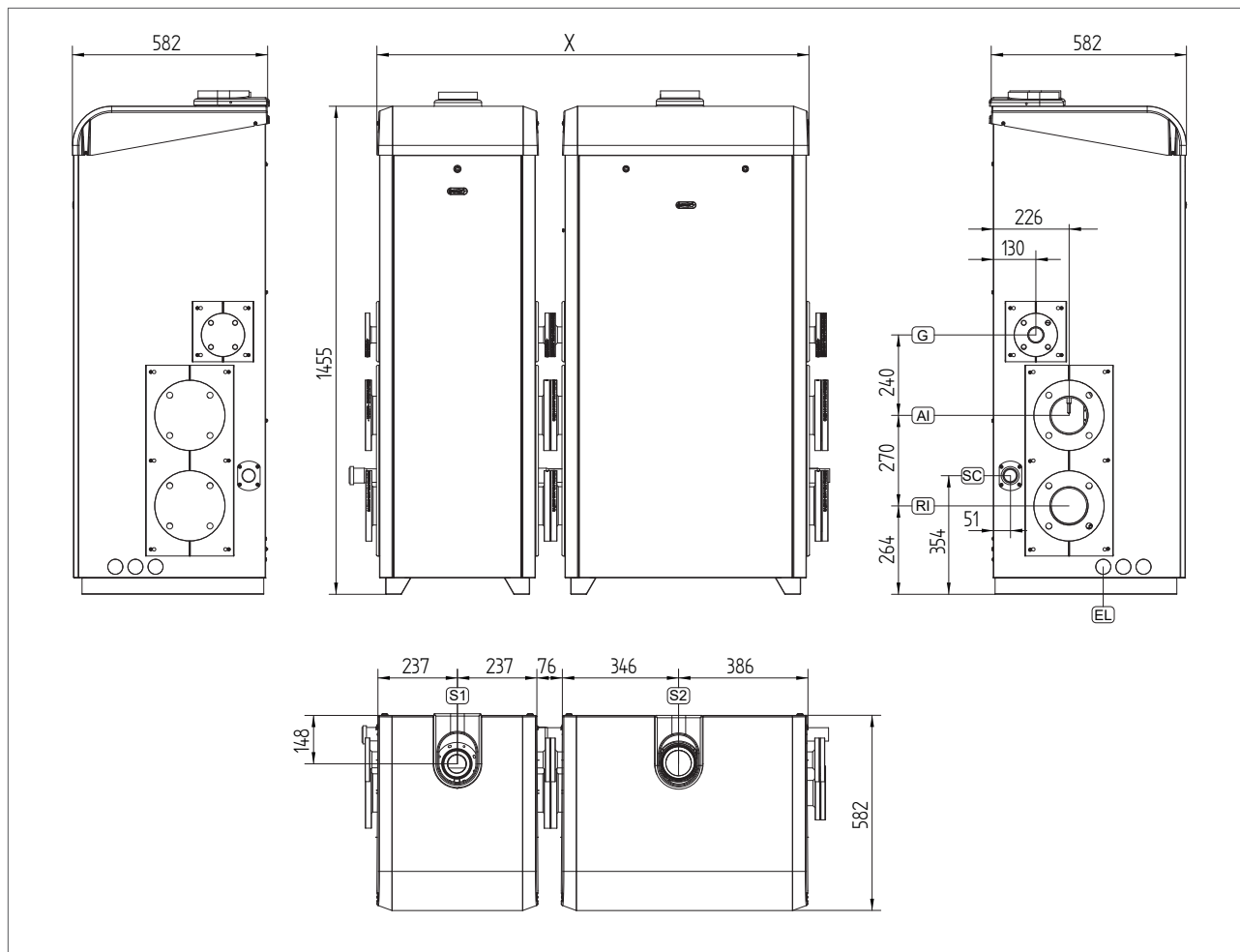
⁽¹⁾ Single thermal unit

⁽²⁾ Single FCM 50 unit

⁽³⁾ Single FCM 100 unit

4. DIMENSIONS

F 150 - F 250 - F 350 - F 450

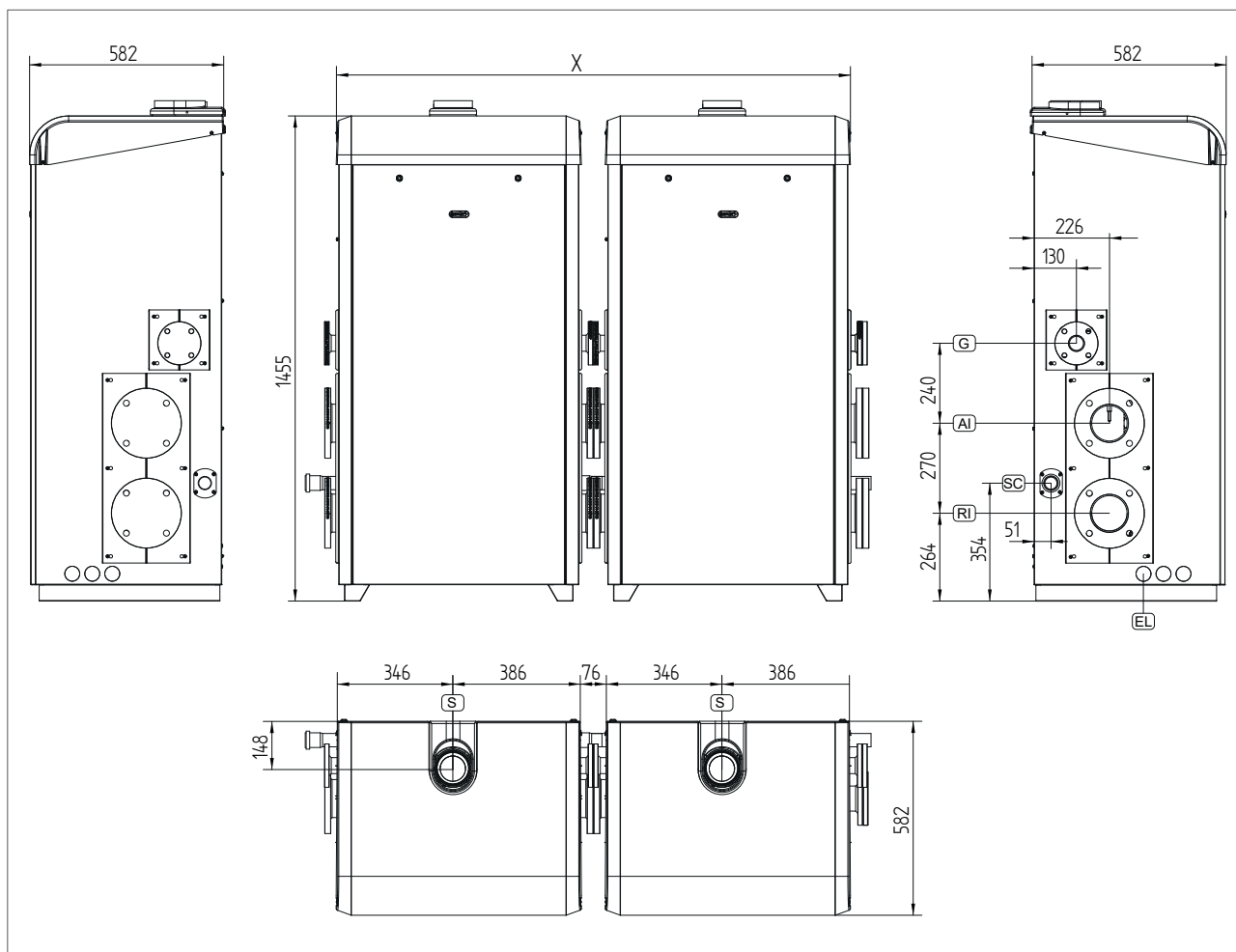


AI	C.H. FLOW	DN100-PN6
RI	C.H. RETURN	DN100-PN6
G	GAS	DN40-PN6
S1	FLUE OUTLET	Ø80
S2	FLUE OUTLET	Ø100
SC	CONDENSATE DRAIN	Ø40
EL	ELECTRICAL CABLES PASSAGE POINTS	Ø40

model	compositions	X mm
F 150	1 x FCM 50 + 1 x FCM 100	1289
F 250	1 x FCM 50 + 2 x FCM 100	2096
F 350	1 x FCM 50 + 3 x FCM 100	2903
F 450	1 x FCM 50 + 4 x FCM 100	3710

ATTENTION: For outputs higher than 500 kW, please contact our technical department.

F 200 - F 300 - F 400 - F 500

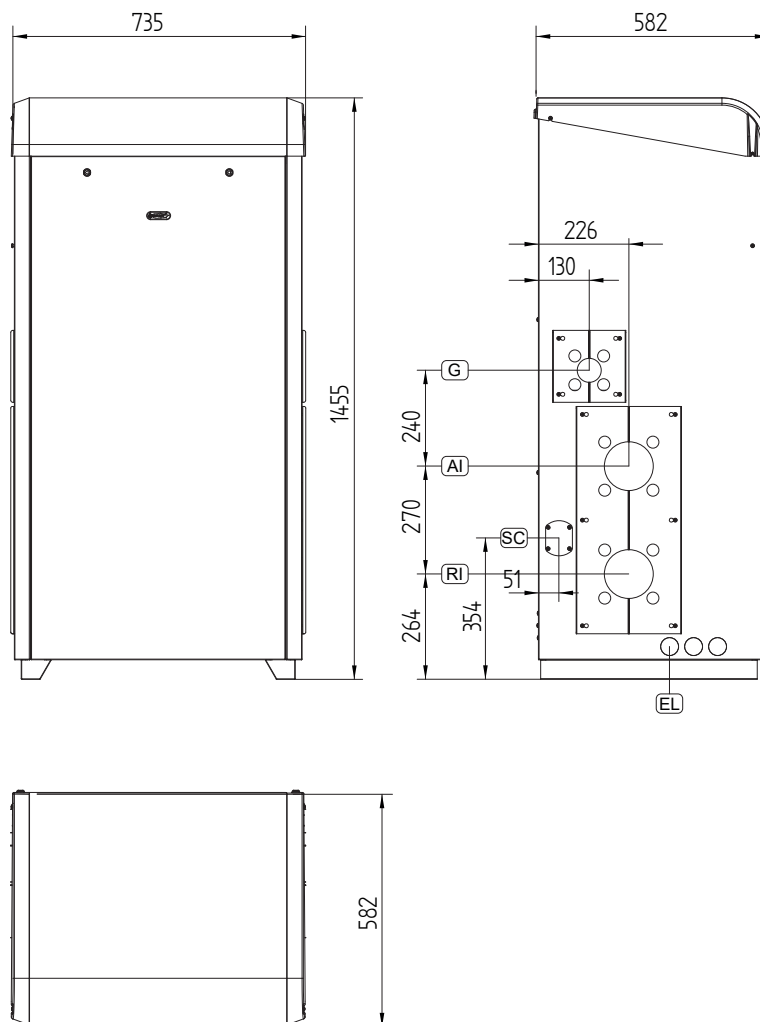


AI	C.H. FLOW	DN100-PN6
RI	C.H. RETURN	DN100-PN6
G	GAS	DN40-PN6
S	FLUE OUTLET	Ø100
SC	CONDENSATE DRAIN	Ø40
EL	ELECTRICAL CABLES PASSAGE POINTS	Ø40

model	compositions	X mm
F 200	2 x FCM 100	1542
F 300	3 x FCM 100	2349
F 400	4 x FCM 100	3159
F 500	5 x FCM 100	3963

ATTENTION: For outputs higher than 500 kW, please contact our technical department.

DOUBLE BOX EMPTY for accessories

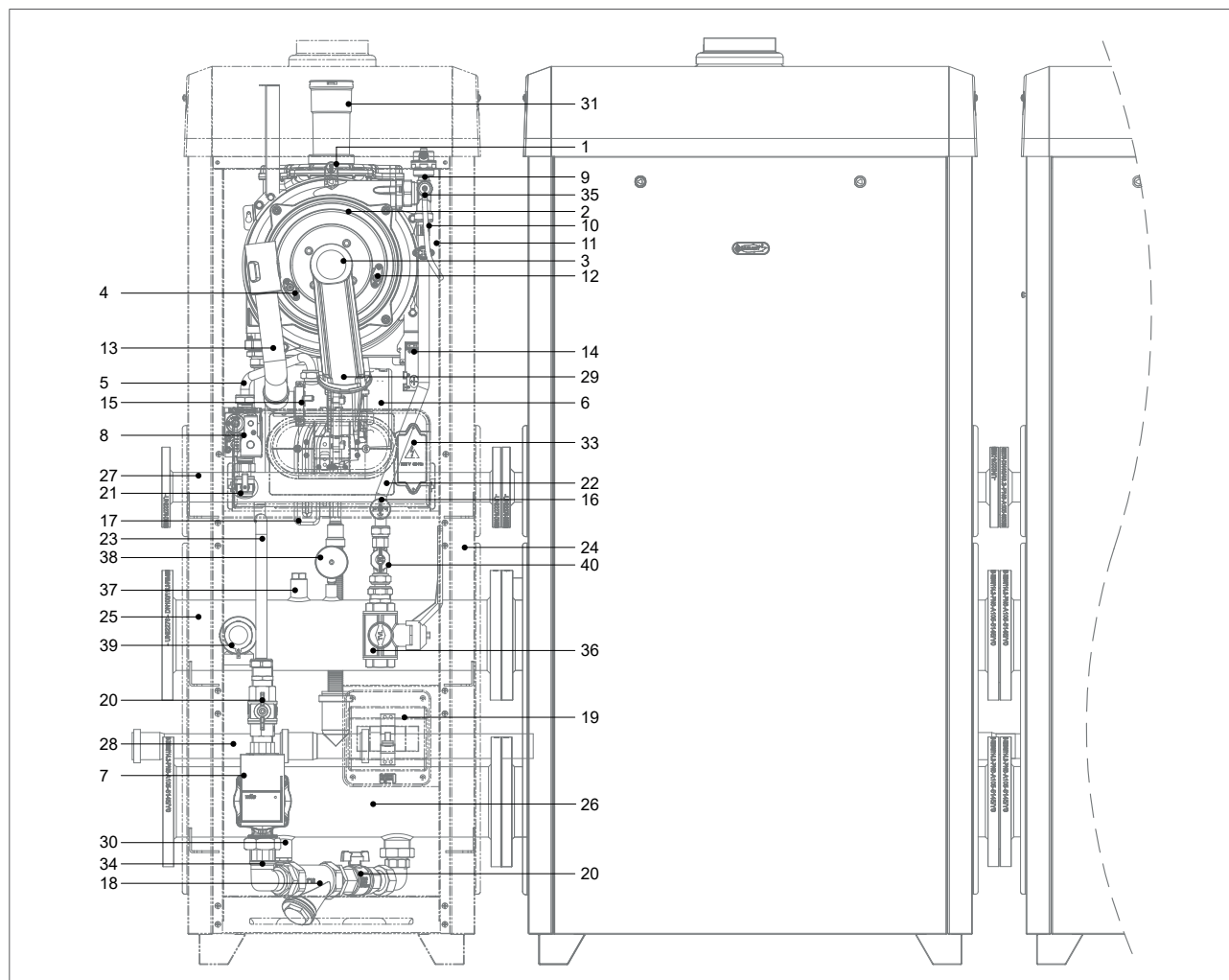


KEY

AI	C.H. FLOW MANIFOLD PASSAGE POINT
RI	C.H. RETURN MANIFOLD PASSAGE POINT
G	GAS MANIFOLD PASSAGE POINT
SC	CONDENSATE DRAIN MANIFOLD PASSAGE POINT
EL	ELECTRICAL CABLES PASSAGE POINTS

5. TECHNICAL ASSEMBLY

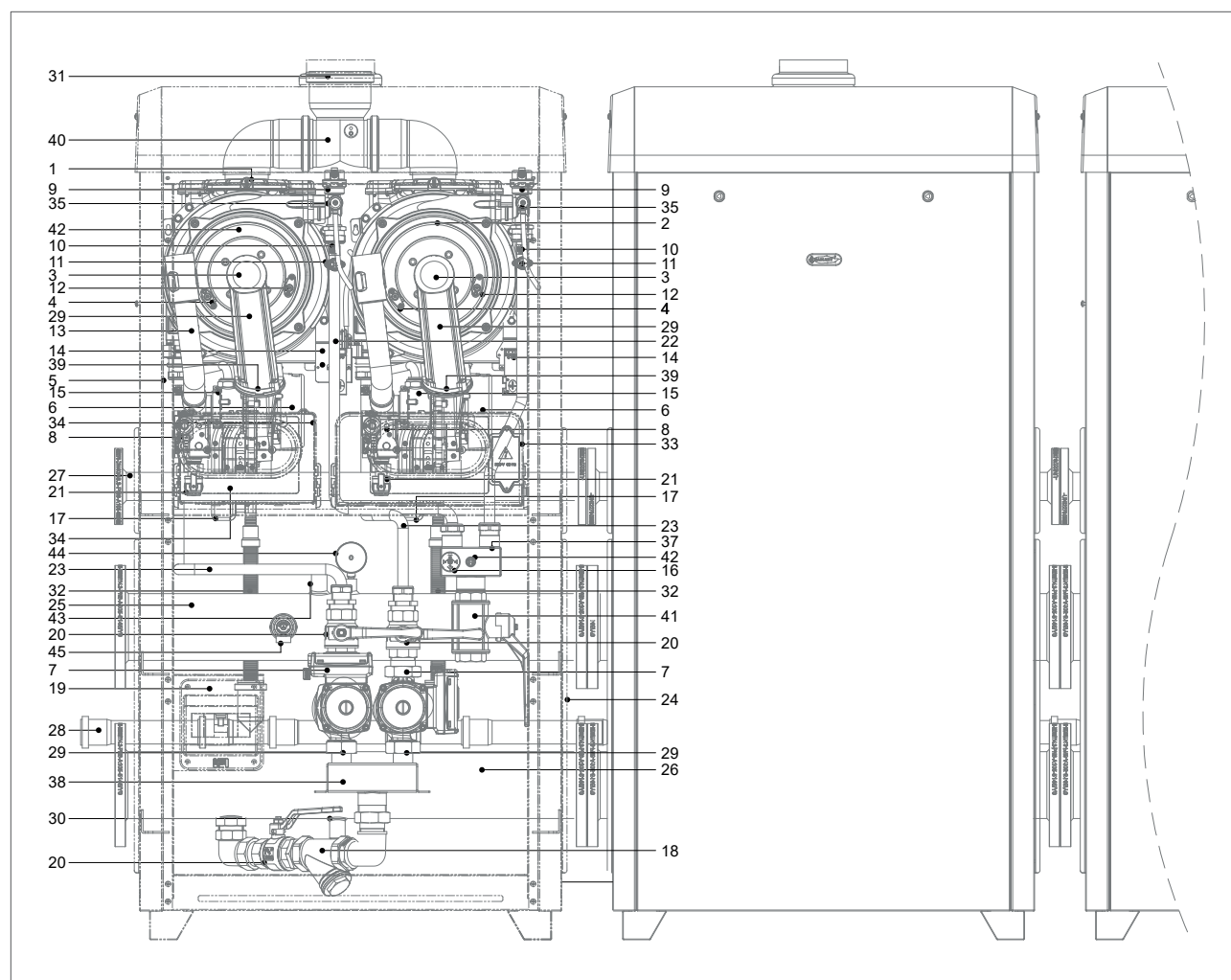
FCM 50



KEY

- | | |
|----------------------------------|---|
| 1. FUMES SAFETY THERMOFUSE | 22. HEATING FLOW VERTICAL CONNECTOR |
| 2. INTEGRATED HEAT EXCHANGER | 23. HEATING RETURN VERTICAL CONNECTOR |
| 3. BURNER UNIT | 24. BOX |
| 4. DETECTION ELECTRODE | 25. HYDRAULIC MANIFOLD HEATING FLOW |
| 5. HEATING RETURN PROBE | 26. HYDRAULIC MANIFOLD HEATING RETURN |
| 6. ELECTRIC FAN | 27. HYDRAULIC MANIFOLD GAS |
| 7. CIRCULATOR | 28. HYDRAULIC MANIFOLD CONDESANTE DRAIN |
| 8. ELECTRONIC GAS VALVE | 29. FLUE MANIFOLD INTEGRATED NON-RETURN VALVE |
| 9. AUTOMATIC AIR RELIEF VALVE | 30. SYSTEM DRAIN VALVE |
| 10. HEATING PROBE | 31. FLUE EXHAUST FITTING |
| 11. SAFETY THERMOSTAT | 32. DRAIN PIPE |
| 12. LIGHT UP ELECTRODE | 33. CONTROL PANEL |
| 13. AIR SUCTION TUBE | 34. NON-RETURN VALVE |
| 14. START-UP TRANSFORMER | 35. MANUAL AIR RELIEF VALVE |
| 15. PROPORTIONAL VENTURI | 36. ISOLATING THREE-WAY VALVE |
| 16. WATER PRESSURE SWITCH | 37. INSPECTION MANHOLE |
| 17. CONDENSATE COLLECTION SIPHON | 38. WATER PRESSURE GAUGE |
| 18. STRAINER | 39. SAFETY VALVE |
| 19. ELECTRICAL CONNECTIONS BOX | 40. FLUXMETER |
| 20. ISOLATING VALVE | |
| 21. ISOLATING GAS VALVE | |

FCM 100

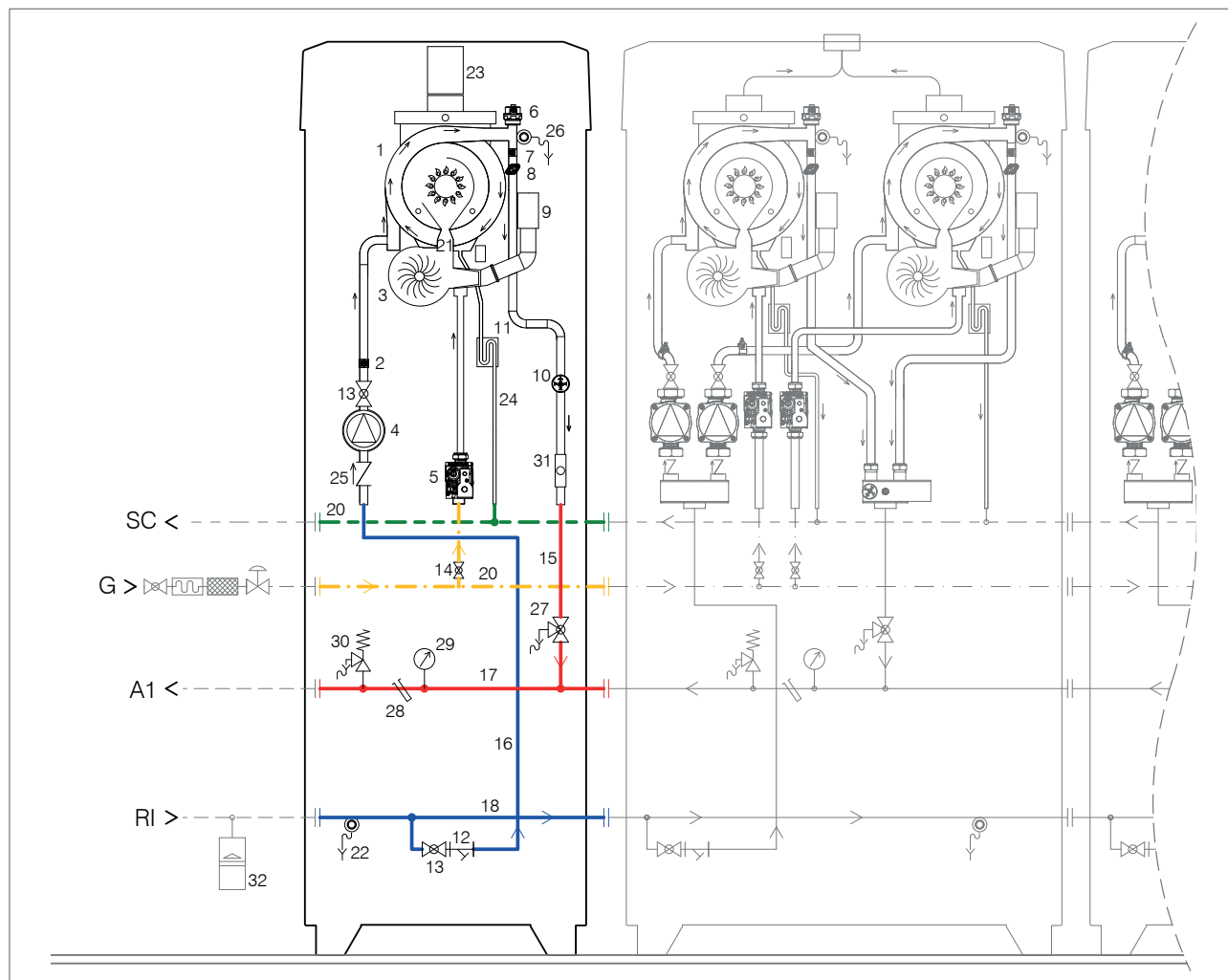


KEY

- | | |
|---|---|
| 1. FUMES SAFETY THERMOFUSE | 25. HORIZONTAL HEATING FLOW MANIFOLD |
| 2. INTEGRATED HEAT EXCHANGER - 50 KW MASTER | 26. HORIZONTAL HEATING RETURN MANIFOLD |
| 3. BURNER UNIT | 27. HORIZONTAL GAS MANIFOLD |
| 4. DETECTION ELECTRODE | 28. HORIZONTAL CONDESANTE DRAIN MANIFOLD |
| 5. HEATING RETURN PROBE | 29. INTEGRATED NON-RETURN VALVE |
| 6. ELECTRIC FAN | 30. SYSTEM DRAIN VALVE |
| 7. CIRCULATOR | 31. FLUE EXHAUST FITTING |
| 8. GAS VALVE | 32. DRAIN PIPE |
| 9. AIR RELIEF VALVE | 33. CONTROL PANEL MASTER |
| 10. HEATING PROBE | 34. CONTROL PANEL SLAVE |
| 11. SAFETY THERMOSTAT | 35. MANUAL AIR RELIEF VALVE |
| 12. LIGHT UP ELECTRODE | 36. HEATING FLOW MANIFOLD SENSOR |
| 13. AIR SUCTION TUBE | 37. HEATING FLOW MANIFOLD |
| 14. START-UP TRANSFORMER | 38. HEATING RETURN MANIFOLD |
| 15. PROPORTIONAL VENTURI | 39. FLUE MANIFOLD INTEGRATED NON RETURN VALVE |
| 16. WATER PRESSURE SWITCH | 40. FLUE MANIFOLD |
| 17. CONDENSATE COLLECTION SIPHON | 41. ISOLATING THREE-WAY VALVE |
| 18. STRAINER | 42. INTEGRATED HEAT EXCHANGER- 50 kW SLAVE |
| 19. ELECTRICAL CONNECTIONS BOX | 43. INSPECTION MANHOLE |
| 20. ISOLATING VALVE | 44. WATER PRESSURE GAUGE |
| 21. ISOLATING GAS VALVE | 45. SAFETY VALVE |
| 22. HEATING FLOW VERTICAL CONNECTOR | |
| 23. HEATING RETURN VERTICAL CONNECTOR | |
| 24. BOX | |

6. WATER CIRCUIT

FCM 50 - Cascade installation example.



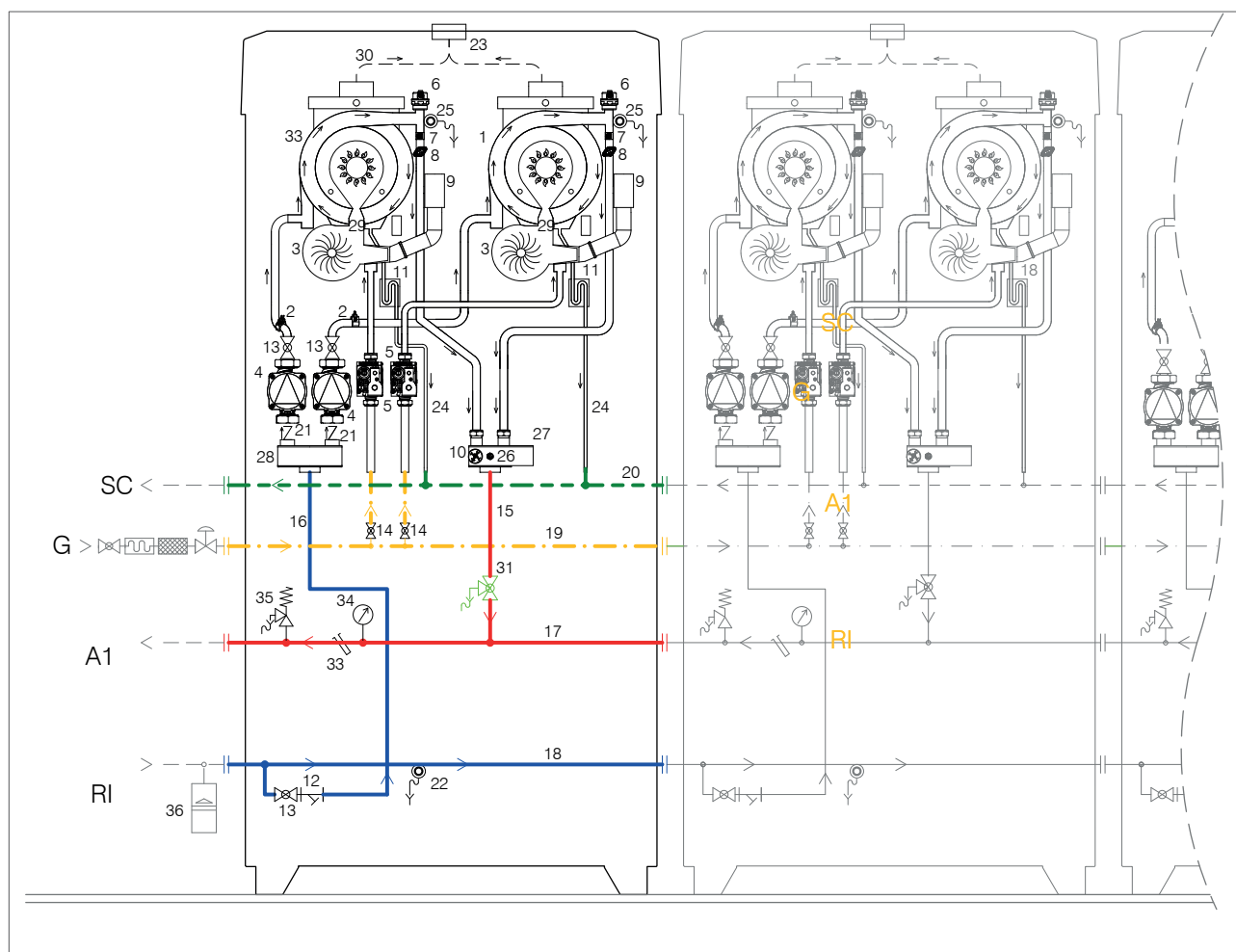
KEY

RI. C.H. RETURN
G. GAS
SC. CONDENSATE DRAIN
AI. C.H. FLOW

1. INTEGRATED HEAT EXCHANGER
2. HEATING RETURN PROBE
3. ELECTRIC FAN
4. CIRCULATOR
5. ELECTRONIC GAS VALVE
6. AUTOMATIC AIR RELIEF VALVE
7. HEATING PROBE
8. SAFETY THERMOSTAT
9. AIR SUCTION TUBE
10. WATER PRESSURE SWITCH
11. CONDENSATE COLLECTION SIPHON
12. STRAINER
13. ISOLATING VALVE
14. ISOLATING GAS VALVE

15. HEATING FLOW VERTICAL CONNECTOR
16. HEATING RETURN VERTICAL CONNECTOR
17. HYDRAULIC MANIFOLD HEATING FLOW
18. HYDRAULIC MANIFOLD HEATING RETURN
19. HYDRAULIC MANIFOLD GAS
20. HYDRAULIC MANIFOLD CONDESANTE DRAIN
21. FLUE MANIFOLD INTEGRATED NON-RETURN VALVE
22. SYSTEM DRAIN VALVE
23. FLUE EXHAUST FITTING
24. DRAIN PIPE
25. NON-RETURN VALVE
26. MANUAL AIR RELIEF VALVE
27. ISOLATING THREE-WAY VALVE
28. INSPECTION MANHOLE
29. WATER PRESSURE GAUGE
30. SAFETY VALVE
31. FLUXMETER
32. EXPANSION VESSEL (BY INSTALLER)

FCM 100 - Cascade installation example.



KEY

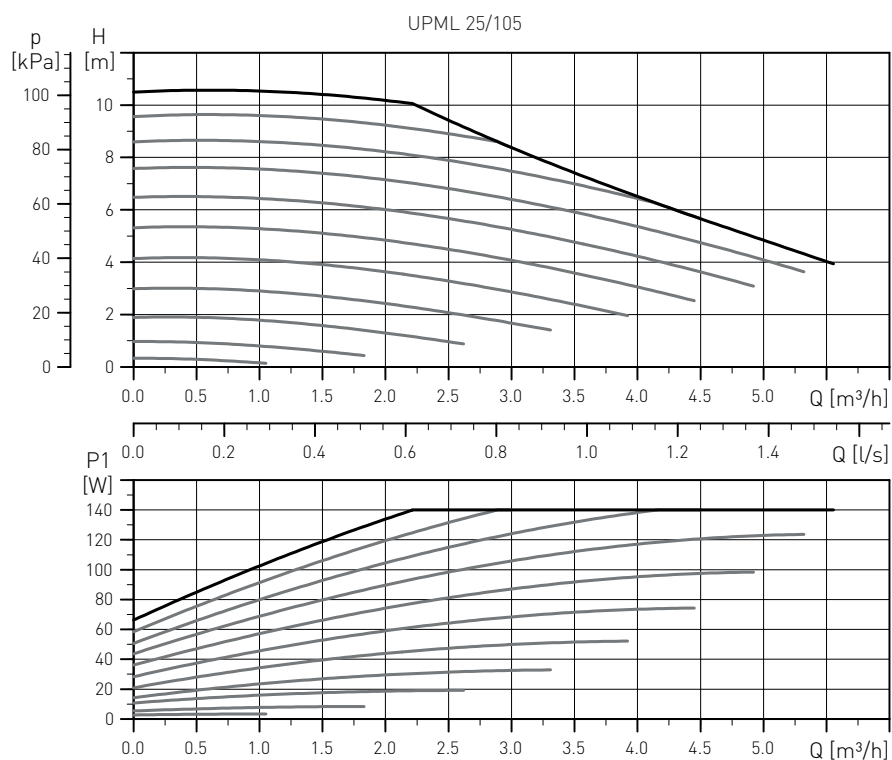
RI. C.H. RETURN
G. GAS
SC. CONDENSATE DRAIN
AI. C.H. FLOW

1. INTEGRATED HEAT EXCHANGER MASTER
2. HEATING RETURN PROBE
3. ELECTRIC FAN
4. CIRCULATOR
5. ELECTRONIC GAS VALVE
6. AUTOMATIC AIR RELIEF VALVE
7. HEATING PROBE
8. SAFETY THERMOSTAT
9. AIR SUCTION TUBE
10. WATER PRESSURE SWITCH
11. CONDENSATE COLLECTION SIPHON
12. STRAINER
13. ISOLATING VALVE
14. ISOLATING GAS VALVE
15. HEATING FLOW VERTICAL CONNECTOR
16. HEATING RETURN VERTICAL CONNECTOR
17. HORIZONTAL HEATING FLOW MANIFOLD

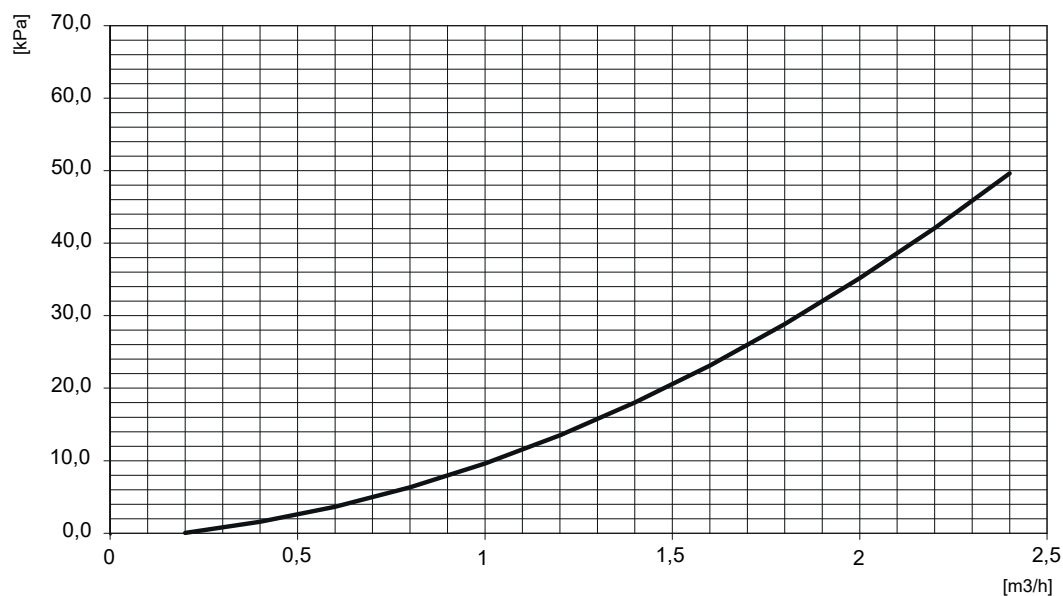
18. HORIZONTAL HEATING RETURN MANIFOLD
19. HORIZONTAL GAS MANIFOLD
20. HORIZONTAL CONDESANTE DRAIN MANIFOLD
21. INTEGRATED NON RETURN VALVE
22. SYSTEM DRAIN VALVE
23. FLUE EXHAUST FITTING
24. DRAIN PIPE
25. MANUAL AIR RELIEF VALVE
26. HEATING FLOW MANIFOLD SENSOR
27. HEATING FLOW MANIFOLD
28. HEATING RETURN MANIFOLD
29. FLUE MANIFOLD INTEGRATED NON RETURN VALVE
30. FLUE MANIFOLD
31. ISOLATING THREE-WAY VALVE
32. INTEGRATED HEAT EXCHANGER SLAVE
33. INSPECTION MANHOLE
34. WATER PRESSURE GAUGE
35. SAFETY VALVE
36. EXPANSION VESSEL (BY INSTALLER)

7. HEAD/FLOW DIAGRAM

CIRCULATOR ⁽¹⁾



INDIVIDUAL BOILER ⁽¹⁾



⁽¹⁾ Single thermal units

8. ACCESSORIES

PLATE HEAT EXCHANGER

In case of a standard boiler's replacement in an old system with impurities and in case of problems during the system flushing, the installation of a heat exchanger is recommended to prevent boiler's obstructions that might compromise

its functioning. The heat exchanger, interface between the primary circuit which includes the boiler and the secondary circuit, guarantees a real separation of thermal carriers flows and the consequently boiler safeguard.

EXCHANGER TABLE

Boiler version	Primary circuit				Secondary circuit					Plate heat exchanger		
	Q	T _{IN}	T _{OUT}	H _{MAX}	Q	T _{IN}	T _{OUT}	H _{MAX}				
	litres/h	°C	°C	kPa	litres/h	°C	°C	kPa	code	model	plate	type
F 150	6450	80	59.9	5.49	8600	55	70	9.46	25-00733	Z3	29	ispezionabile
				4.10				7.07	25-00702	ZB400	80	saldobrasato
F 200	8600	80	59.9	5.32	11467	55	70	9.16	25-00476	Z3	39	ispezionabile
				6.00				10.33	25-00703	ZB450	80	saldobrasato
F 250	10750	80	60	5.22	14333	55	70	8.99	25-00534	Z3	49	inspected
				5.97				10.29	25-00704	ZB450	100	brazed
F 300	12900	80	59.9	5.49	17200	55	70	9.46	25-00712	Z3	57	ispezionabile
				5.95				10.25	25-00736	ZB450	120	saldobrasato
F 350	15050	80	60	5.39	20067	55	70	9.29	25-00713	Z3	67	inspected
				5.24				9.02	25-00706	ZB450	150	brazed
F 400	17200	80	59.9	5.32	22933	55	70	9.16	25-00741	Z3	77	ispezionabile
				6.67				11.49	25-00737	ZB450	150	saldobrasato
F 450	19350	80	60	5.49	25800	55	70	9.46	25-00716	Z3	85	inspected
				4.55				7.84	25-00707	ZB700	100	brazed
F 500	21500	80	59.9	5.42	28667	55	70	9.34	25-00743	Z3	95	ispezionabile
				5.51				9.20	25-00738	ZB700	100	saldobrasato

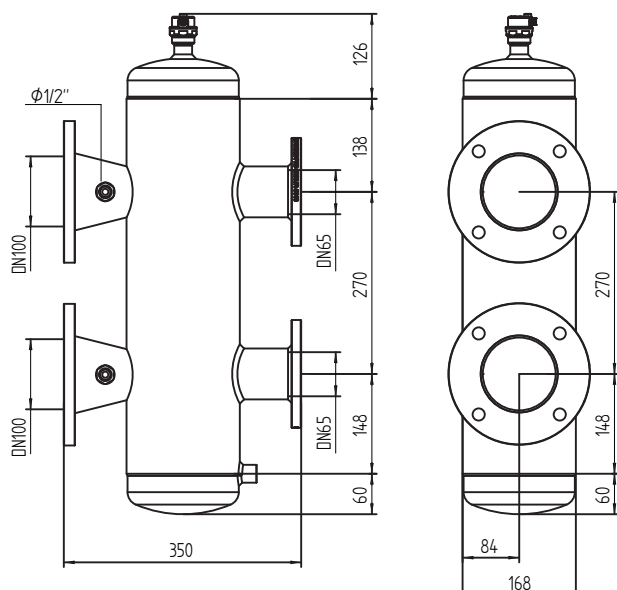
NOTES: The dimensions shown in the table must be considered as purely indicative and are therefore subject to design verification by the professional who draws up the project and are to be considered rough.

HYDRAULIC COMPENSATOR

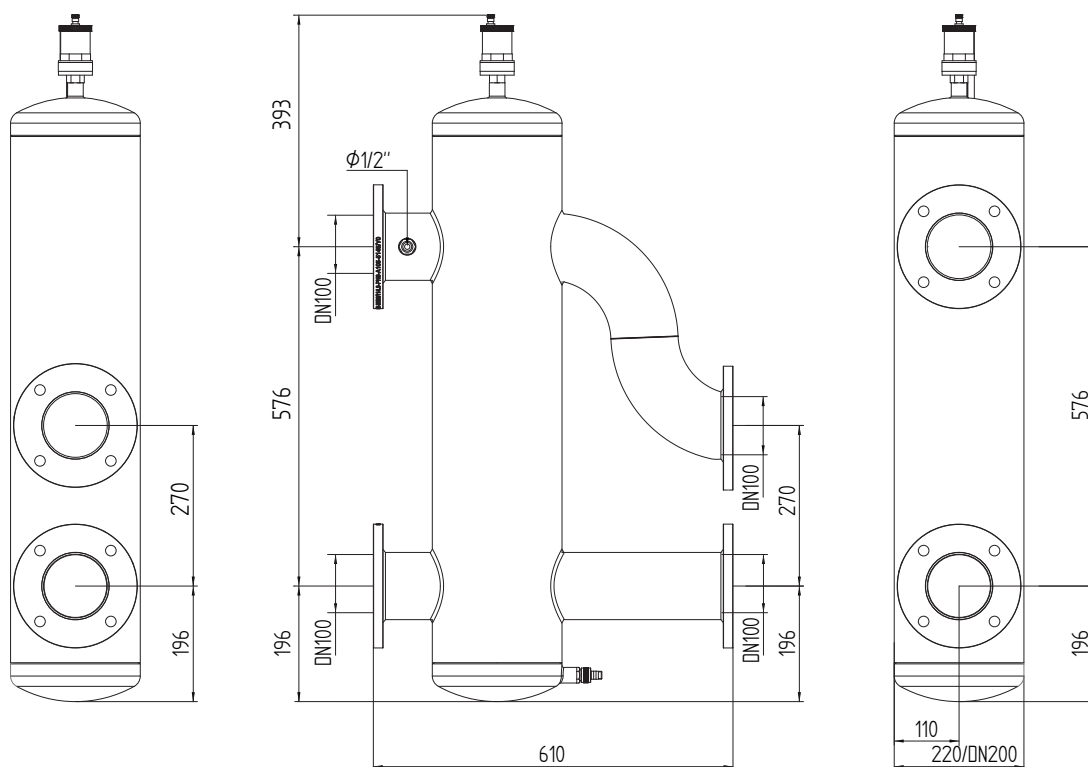
In order to guarantee that the boiler is always functioning without problems related to the flow rates variability on the secondary circuit, it is absolutely necessary to install a hydraulic compensator.

code 26285LP - DN 150 - DN100-PN6 connections

for condensing boilers with power up to 300 kW

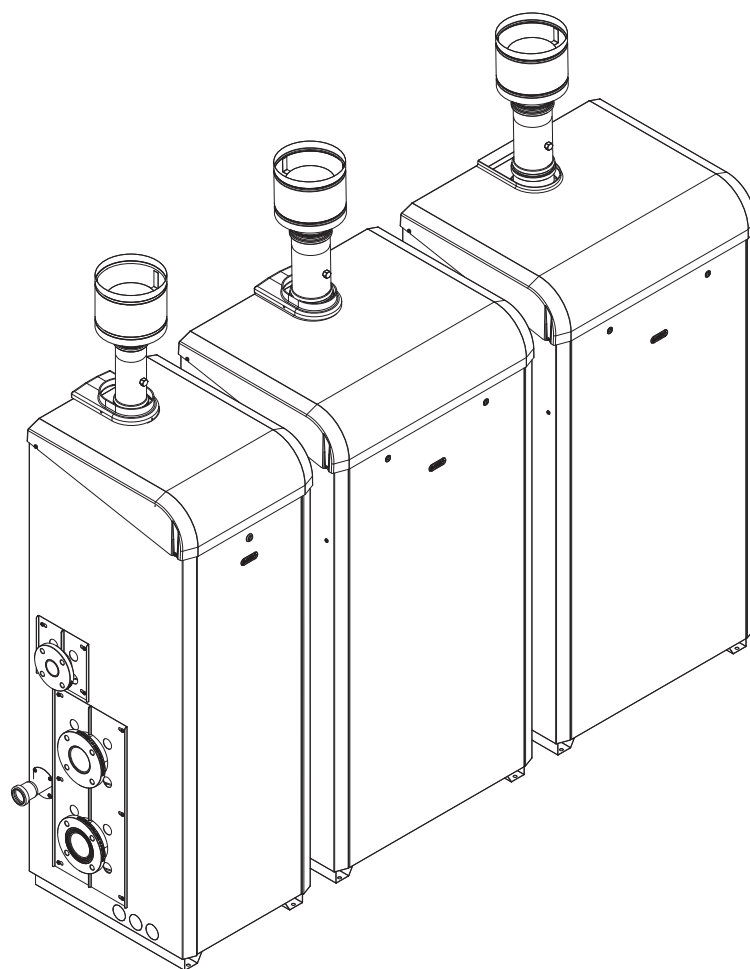


code 26212LP - DN 200 - DN100-PN6 connections



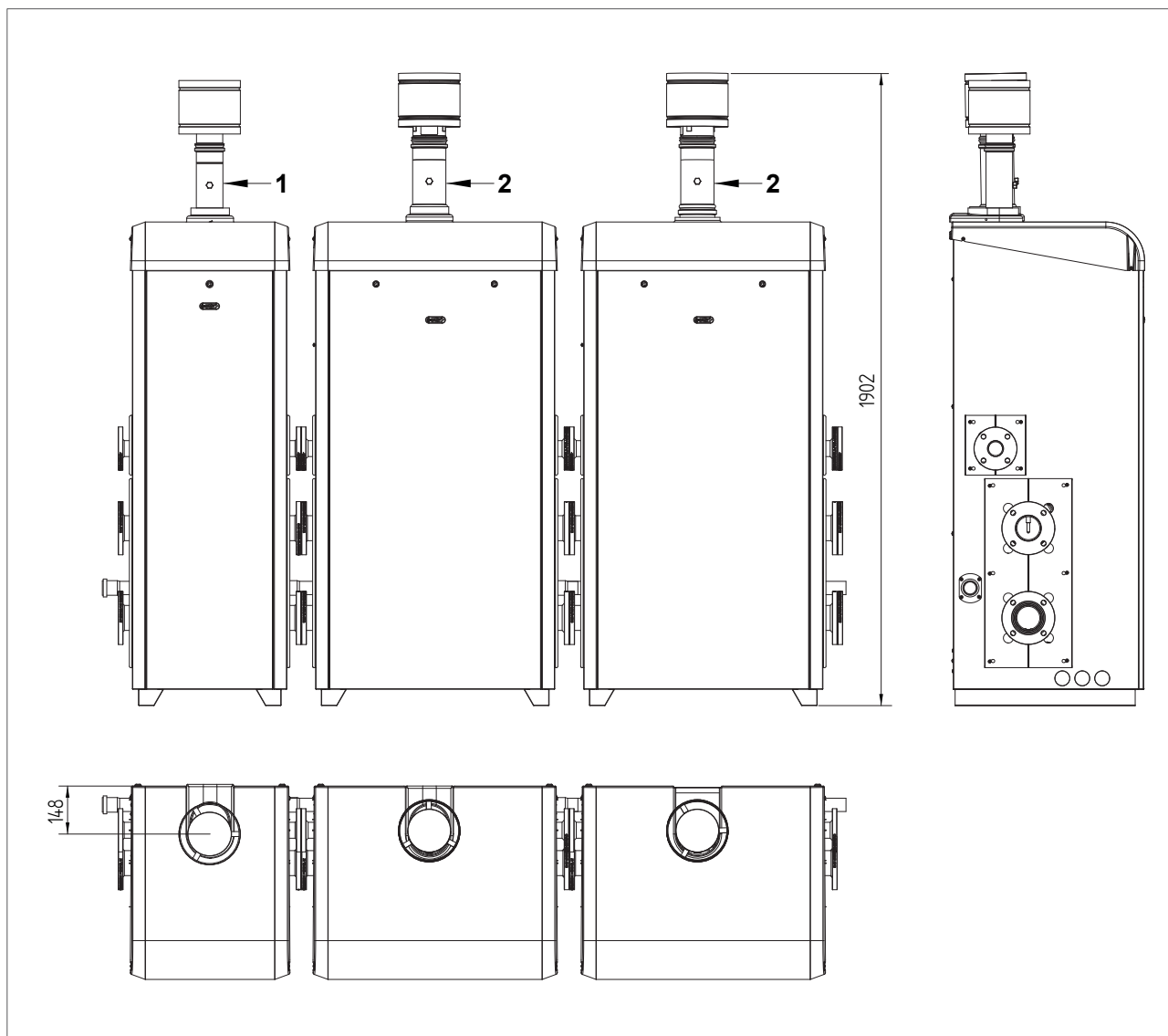
9. TYPES OF FUME EXHAUST SYSTEMS

In case outdoor installations, a series of stainless steel flue gas kits are available for roof flues exhaust.



STAINLESS STEEL VERTICAL FLUE WITH TERMINAL

It allows fumes discharge directly from roof and draws air from atmosphere.



pos	code	description
1	50-00377	STAINLESS STEEL VERTICAL FLUE KIT Ø80 W/FLUE TERMINAL
2	80019LA	STAINLESS STEEL VERTICAL FLUE KIT Ø100 W/FLUE TERMINAL

10. TYPES OF FUME EXHAUST SYSTEMS

FCM 50

STAINLESS STEEL VERTICAL FLUE KIT Ø80

code 50-00377

It allows fumes discharge directly from roof and draws air from atmosphere.

Please see the maximum discharge length in the table in chapter “technical data”.

The maximum discharge length (or linear reference length) can be calculated summing the length of the linear tube and that equivalent to each additional curve with respect to the first.

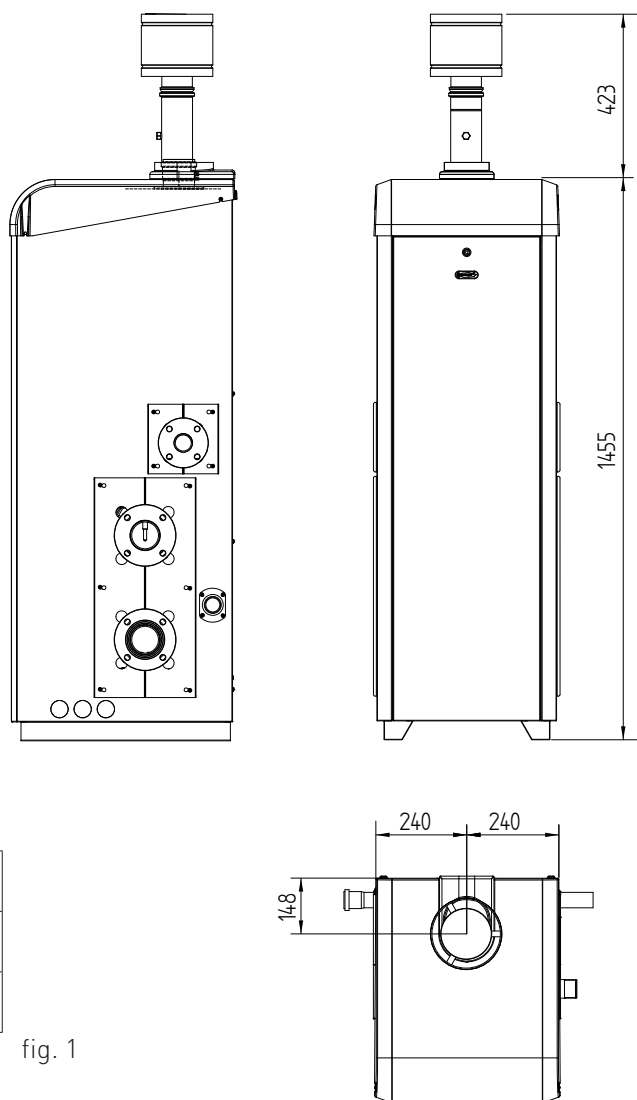


fig. 1

Description	Equivalent lenght [m]
Flue bend 90° MF Ø80	1.5
Flue bend 45° MF Ø80	0.8

FCM 100

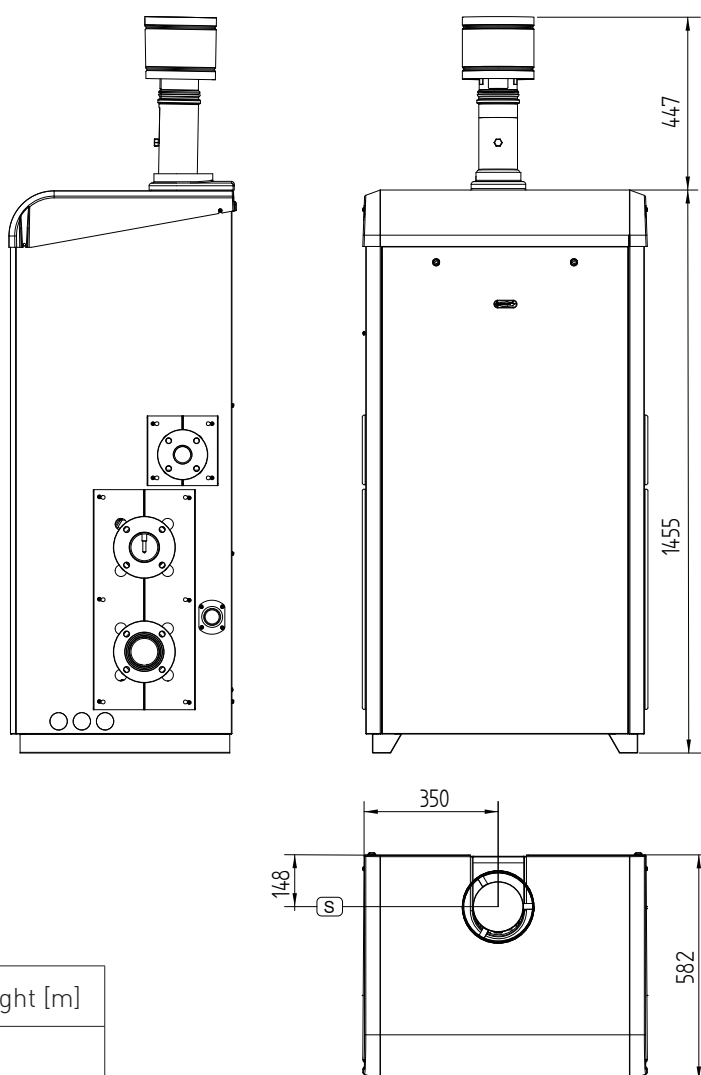
STAILESS STEEL VERTICAL FLUE KIT Ø100 mm

code 80019LA

It allows fumes discharge directly from roof and draws air from atmosphere.

Please see the maximum discharge length in the table in chapter “technical data”.

The maximum discharge length (or linear reference length) can be calculated summing the length of the linear tube and that equivalent to each additional curve with respect to the first.



Description	Equivalent lenght [m]
Flue bend 90° MF Ø100	1.5
Flue bend 45° MF Ø100	0.8

fig. 1



STAINLESS STEEL VERTICAL FLUE KIT Ø80 W/FLUE
TERMINAL

code 50-00377



STAINLESS STEEL VERTICAL FLUE KIT Ø100 W/FLUE
TERMINAL

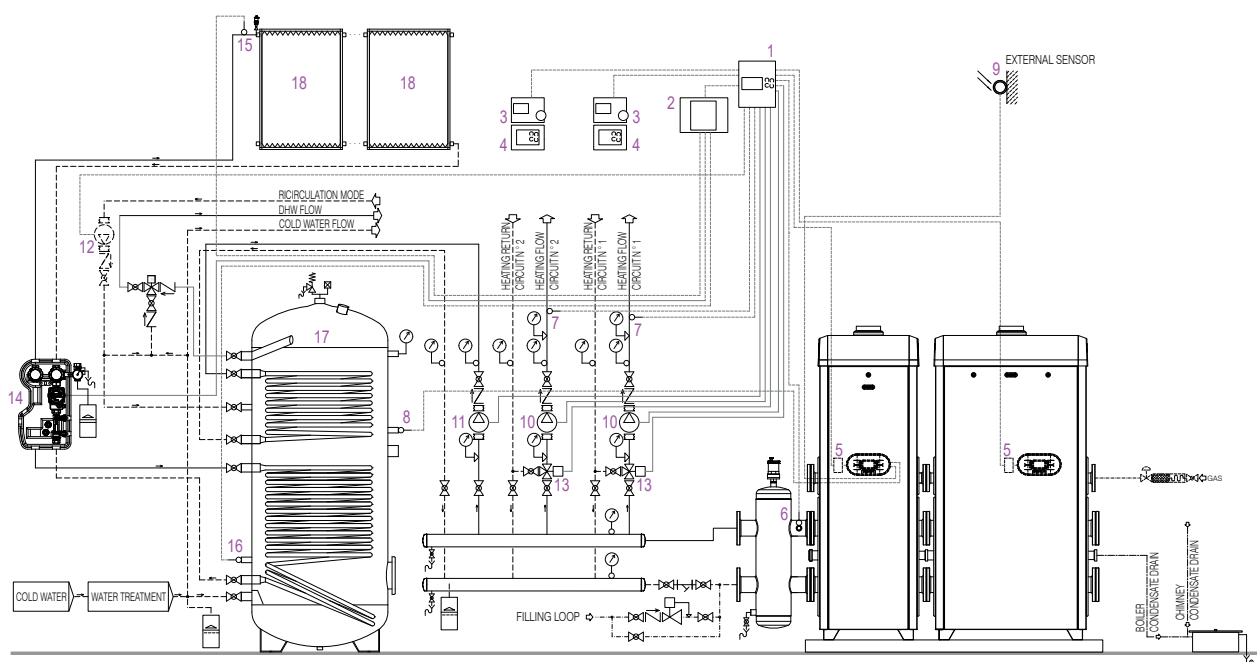
code 80019LA

11. CASCADE REGULATION

This device is a climatic regulator and a digital cascade/sequence regulator. It manages cascade systems made by maximum 8 boilers and controls thermal systems made by different circuits such as two mixed circuits, a DHW circuit, a loop circuit and a solar circuit. The ModBus unit allows the regulator to control all functions and to guarantee a total electronic modulation of boilers according to the requested output.

	code 40-00337	CASCADE REGULATOR MODBUS DDC-mPID4DSP2 (MASTER)
	code 65-00691	SOLAR ELECTRONIC BOARD (SLAVE)
	code 65-00544	CONTROL BOX OT/ModBus
	code 40-00344	HEATING CIRCUIT ROOM TEMPERATURE CONTROLLER
	code 73518LA	OUTDOOR TEMPERATURE SENSOR
	code 40-00355	WEB VISOR - CASCADE SYSTEM REMOTE CONTROLLER
-	code 40-00351	MANIFOLD / MIXING CIRCUIT SENSOR
-	code 40-00346	D.H.W. STORAGE CYLINDER / SOLAR STORAGE CYLINDER SENSOR CABLE SBS - SBI2
-	code 40-00347	SOLAR STORAGE CYLINDER SENSOR CABLE SBI
-	code 31409LA	SOLAR COLLECTOR SENSOR SBS

12. SYSTEM MECHANICAL CIRCUIT



POSITION	DESCRIPTION	CODE
1	CASCADE REGULATOR MODBUS DDC-mPID4DSP2 (MASTER)	40-00337
2	SOLAR ELECTRONIC BOARD (SLAVE)	65-00691
3	HEATING CIRCUIT ROOM THERMOSTAT	-
4	HEATING CIRCUIT ROOM TEMPERATURE CONTROLLER (IN ALTERNATIVE TO HEATING CIRCUIT ROOM THERMOSTAT)	40-00344
5	CONTROL BOX OT/ModBus	65-00544
6	MANIFOLD SENSOR (MANIFOLD / MIXING CIRCUIT SENSOR)	40-00351
7	HEATING FLOW SENSOR MIXING HEATING CIRCUIT (MANIFOLD / MIXING CIRCUIT SENSOR)	40-00351
8	D.H.W. STORAGE CYLINDER / SOLAR STORAGE CYLINDER SENSOR CABLE SBS - SBI2	40-00346
9	OUTDOOR TEMPERATURE SENSOR	73518LA
10	MIXING HEATING CIRCUIT PUMP	-
11	D.H.W. CIRCUIT PUMP	-
12	FILLING LOOP PUMP	-
13	3-WAY MIXING VALVE HEATING CIRCUIT	-
14	SOLAR CIRCUIT PUMP	-
15	SOLAR COLLECTOR SENSOR SBS	31409LA
16	SOLAR STORAGE CYLINDER SENSOR CABLE SBI	40-00347
17	D.H.W. STORAGE CYLINDER	-
18	SOLAR COLLECTOR	-

Aleabrax Systems

5-7 Katanning St
Bayswater WA 6105
AUSTRALIA