

FLOOR STANDING CONDENSING BOILER FOR OUTDOOR INSTALLATION



1. GENERAL FEATURES



The High Power Heating Units 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 F 50 model is a boiler equipped with one heat exchanger, while the F 100 is boiler equipped with two 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, 73 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 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. The new models are available with outputs ranging from 24 to 100 kW for individual installations, fitted with hydraulic separator integrated in a metal casing box. Units are supplied with accessories tested for outdoor installation and complete with galvanized sheet metal casing painted with epoxy powders and top protection cap in ABS material.

2. TECHNICAL DATA

Model			F 50	F 100
	kW		50	100
Heat Input min.	kW		5	5
Heat Output max. - 80/60°C	kW		49.19	98.37
Heat Output min. - 80/60°C	kW		4.83	4.83
Heat Output max. - 50/30°C	kW		53.40	106.80
Efficiency 100% Pn - 60/80°C	%		98.37	98.37
Average efficiency 100% Pn - 60/80°C	%		97.88	97.88
Efficiency 100% Pn - 30/50°C	%		106.80	106.80
Efficiency 30% Pn - return 47°C	%		102.80	102.80
Efficiency 30% Pn - return 30°C	%		108.83	108.83
Heating circuit				
Adjustable heating temperature	°C		30-80/25-45	30-80/25-45
Maximum operating temperature for heating circuit	°C		95	95
Maximum operating pressure for heating circuit	bar		5	5
Minimum operating pressure for heating circuit	bar		0.3	0.3
Primary circuit water content	litres		4.6	9.2
Dimensional characteristics				
Width	mm		480	735
Depth	mm		582	582
Height	mm		1455	1455
Gross weight	kg		80	95
Fume exhaust fittings				
Maximum electric fan pressure available	Pa		100	100
Minimum electric fan pressure available	Pa		30	30
Max discharge length Ø80 - Horz./Vertical single pipe	m		25	-
Max discharge length Ø100 - Horiz./Vertical single piped	m		-	10
Electrical specifications				
Voltage-frequency	V/Hz		230/50	230/50
Max Absorbed Power	W		108	186
Pump electrical power consumption 100%	W		55	95
Electrical power consumption - boiler OFF	W		3.5	7
Electrical protection	IP		X5D	X5D
Gas supply				
Nominal supply pressure - Natural Gas	kPa		1.13	1.13
Fuel consumption - Natural Gas	MJ/h		198	396
Nominal Supply pressure - Universal LPG	kPa		2.75	2.75
Fuel consumption - Universal LPG	MJ/h		198	396

3. COMBUSTION DATA

Model			F 50	F 100
Maximum combustion Performance	%		97.9	97.9
Minimum combustion Performance	%		98.0	98.0
Flue efficiency losses with burner on (full load)	%		2.1	2.1
Flue efficiency losses with burner on (minimum load)	%		2.0	2.0
Flue efficiency losses with burner off	%		0.02	0.02
Casing efficiency losses (full load)	%		0.47	0.47
Casing efficiency losses (minimum load)	%		1.49	1.49
Casing efficiency losses with burner off	%		0.03	0.03
Fumes temperature at nominal heat capacity	°C		66.4	66.4
Fumes temperature at minimum heat capacity	°C		56.8	56.8
Fumes mass at nominal heat capacity	g/s		22.19	44.64
Fumes mass at minimum heat capacity	g/s		2.28	4.56
CO ₂ at nominal heat capacity G20	%		9.3-9.1	9.2-9.0
CO ₂ at minimum heat capacity G20	%		9.0-8.8	9.0-8.8
CO ₂ at nominal heat capacity - G30	%		11.3-11.1	11.30-11.1
CO ₂ at minimum heat capacity - G30	%		10.9-10.7	10.9-10.7
CO ₂ at nominal heat capacity - G31	%		10.3-10.1	10.3-10.1
CO ₂ at minimum heat capacity - G31	%		9.9-9.7	9.8-9.6
CO at nominal heat capacity	ppm		68	68
CO at minimum heat capacity	ppm		1	1
Weighted CO (0% O ₂)	ppm		9	9
NO _x class	class		6	6
NO _x	mg/kWh		51	52
NO _x	mg/kWh		51	51

4. DIMENSIONS

F 50 - Left side

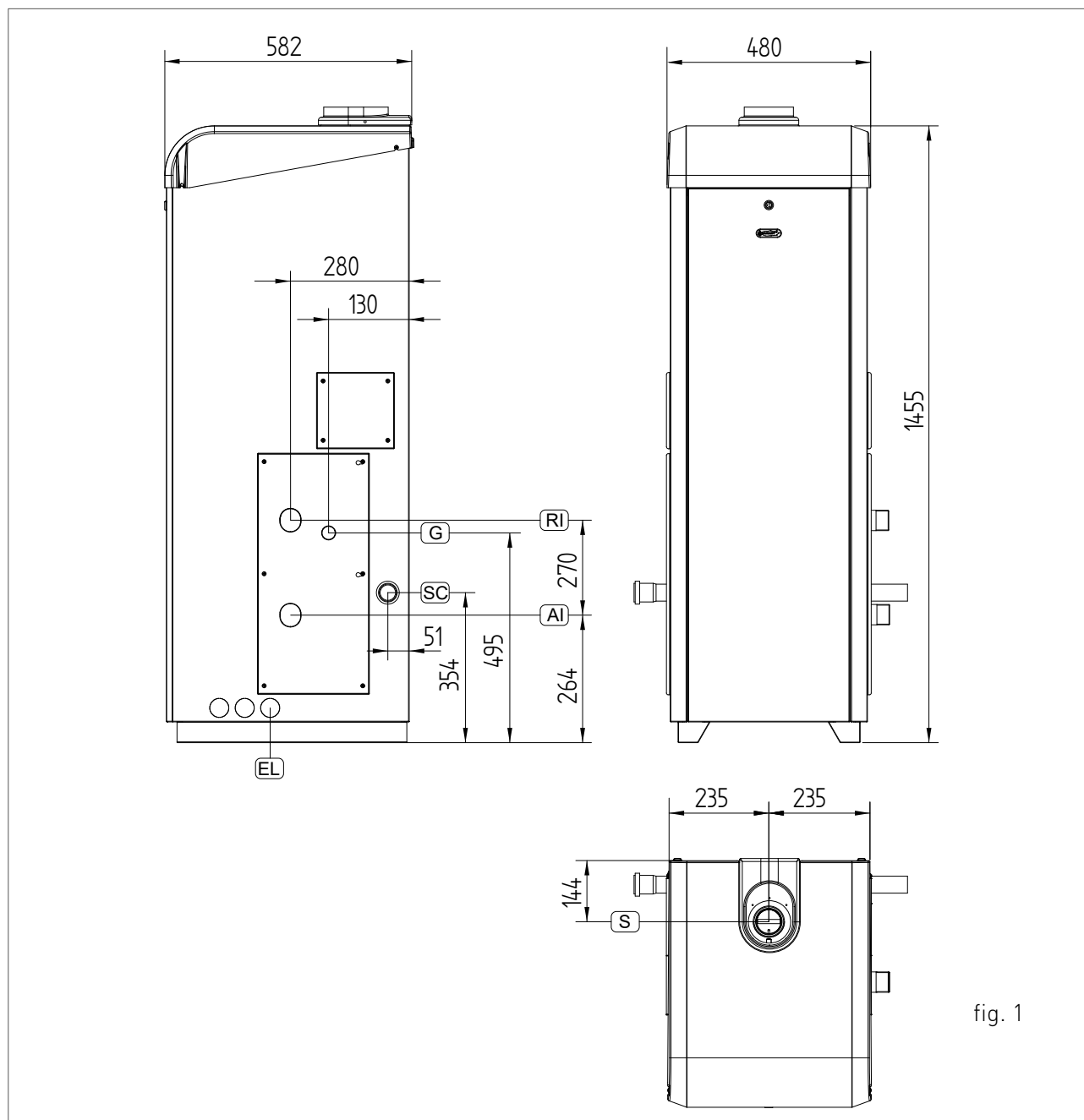
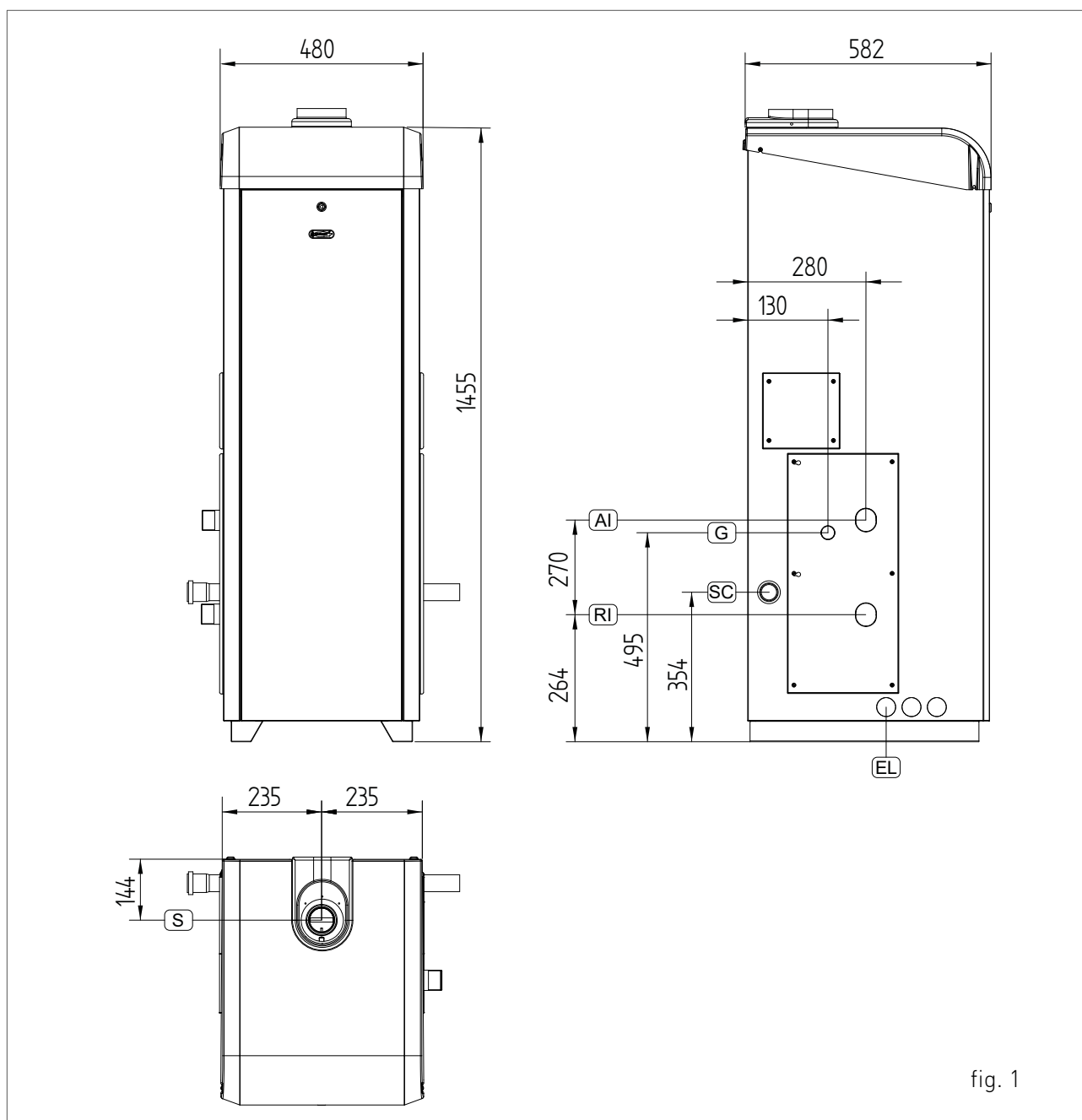


fig. 1

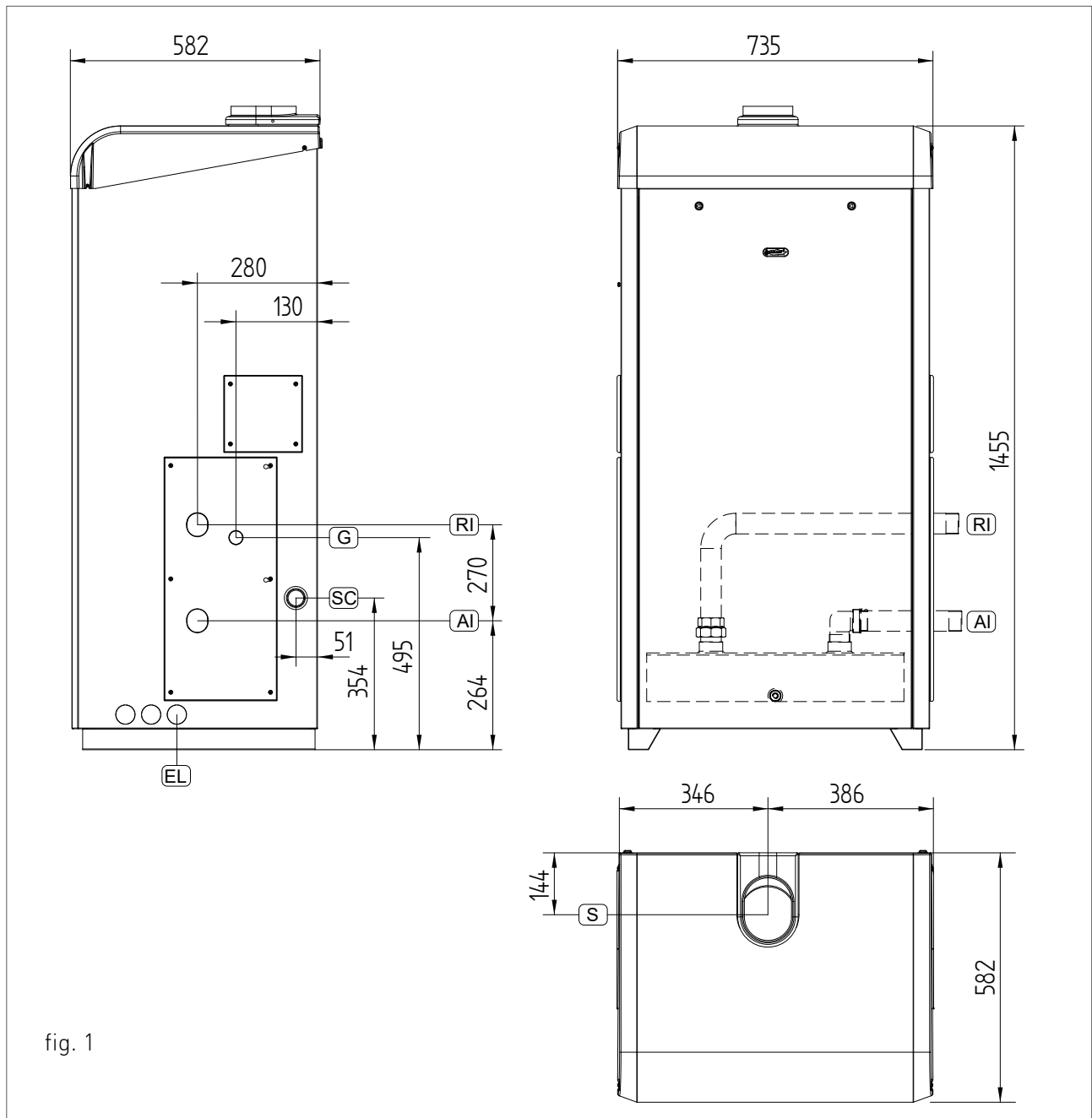
AI	HEATING FLOW	Ø1"1/2
RI	HEATING RETURN	Ø1"1/2
G	GAS	Ø3/4"
SC	CONDENSATE DRAIN	Ø25
E	CABLE GLANDS	Ø20
S	FLUE OUTLET	Ø80

F 50 - Right side



AI	HEATING FLOW	Ø1"1/2
RI	HEATING RETURN	Ø1"1/2
G	GAS	Ø3/4"
SC	CONDENSATE DRAIN	Ø25
E	CABLE GLANDS	Ø20
S	FLUE OUTLET	Ø80

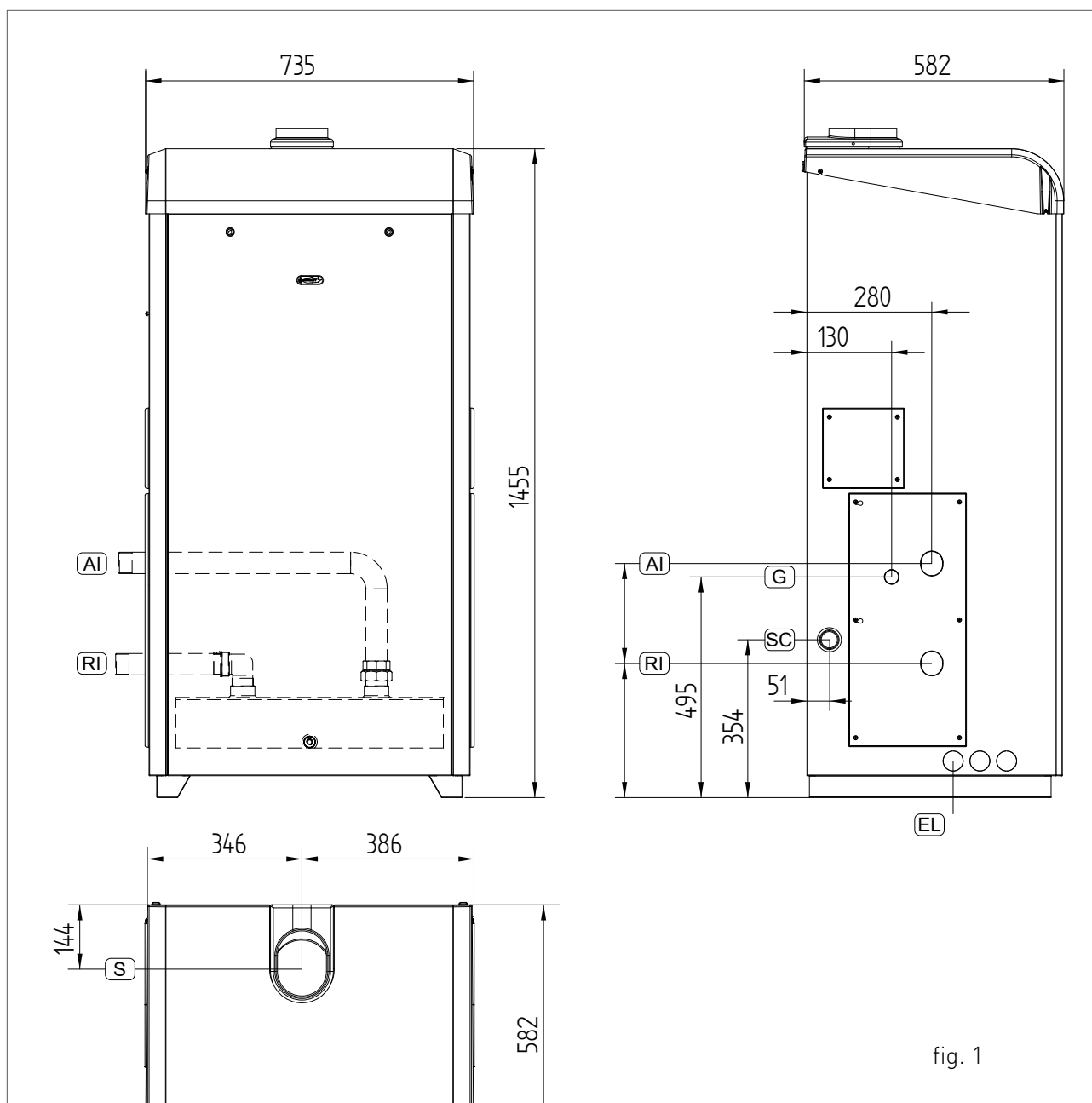
F 100 - Left side



KEY

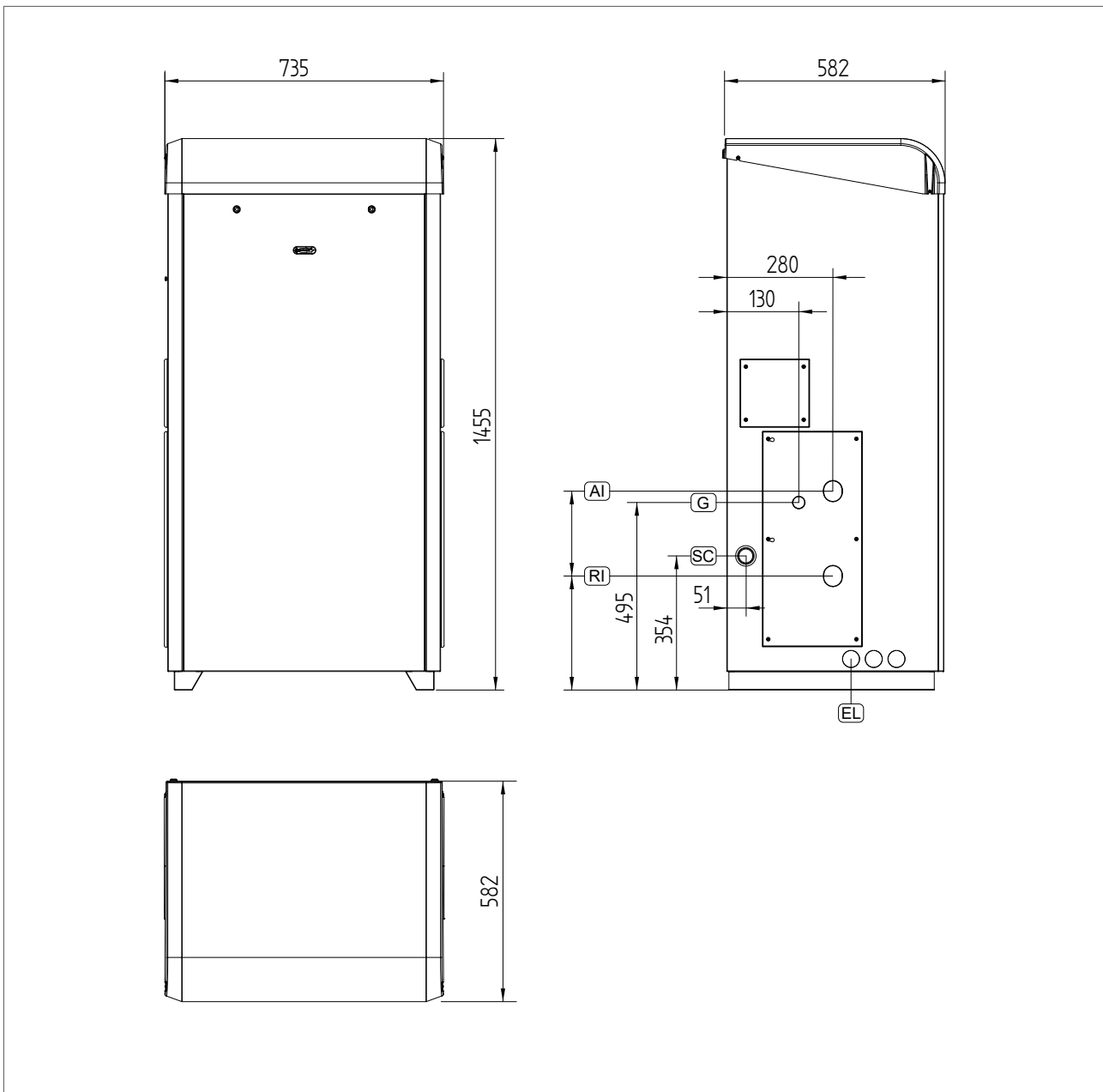
AI	HEATING FLOW	Ø1"1/2
RI	HEATING RETURN	Ø1"1/2
G	GAS	Ø1"
SC	CONDENSATE DRAIN	Ø25
E	CABLE GLANDS	Ø20
S	FLUE OUTLET	Ø100

F 100 - Right side



AI	HEATING FLOW	Ø1"1/2
RI	HEATING RETURN	Ø1"1/2
G	GAS	Ø1"
SC	CONDENSATE DRAIN	Ø25
E	CABLE GLANDS	Ø20
S	FLUE OUTLET	Ø100

DOUBLE BOX EMPTY for accessories



AI	HEATING FLOW PIPE PASSAGE POINT
RI	HEATING RETURN PIPE PASSAGE POINT
G	GAS MANIFOLD PIPE POINT
SC	CONDENSATE DRAIN MANIFOLD PASSAGE POINT
EL	ELECTRICAL CABLES PASSAGE POINTS

5. TECHNICAL ASSEMBLY

F 50

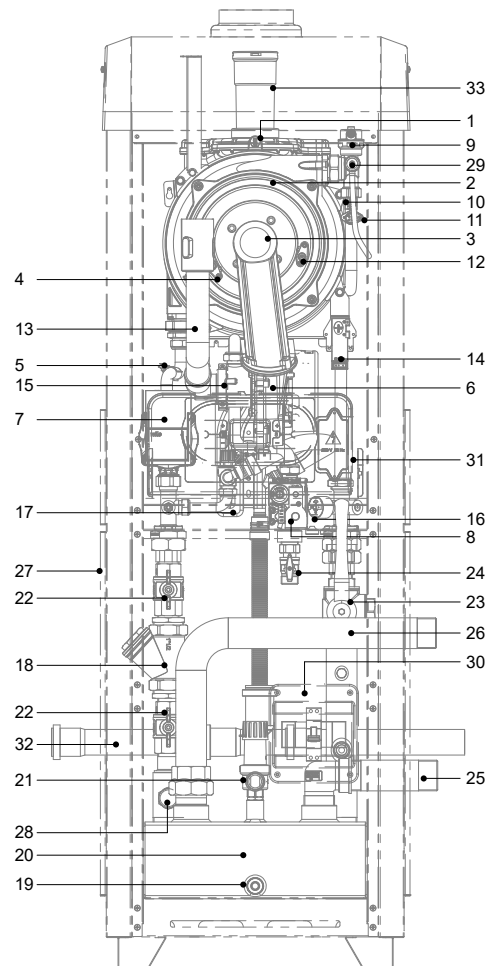


fig. 1

KEY

- | | |
|----------------------------------|-----------------------------------|
| 1. FUMES SAFETY THERMOFUSE | 19. SYSTEM DRAIN VALVE |
| 2. UNIT HEAT EXCHANGER | 20. HYDRAULIC SEPARATOR |
| 3. BURNER UNIT | 21. SAFETY VALVE |
| 4. DETECTION ELECTRODE | 22. ISOLATING VALVE |
| 5. HEATING RETURN PROBE | 23. ISOLATING THREE-WAY VALVE |
| 6. ELECTRIC FAN | 24. GAS VALVE |
| 7. CIRCULATOR | 25. Ø1"1/2 HEATING FLOW FITTING |
| 8. GAS VALVE | 26. Ø1"1/2 HEATING RETURN FITTING |
| 9. AIR RELIEF VALVE | 27. BOX |
| 10. HEATING PROBE | 28. EXPANSION VESSEL CONNECTION |
| 11. SAFETY THERMOSTAT | 29. MANUAL AIR RELIEF VALVE |
| 12. LIGHT UP ELECTRODE | 30. ELECTRICAL CONNECTIONS BOX |
| 13. AIR SUCTION TUBE | 31. CONTROL PANEL |
| 14. START-UP TRANSFORMER | 32. CONDENSATE DRAIN MANIFOLD |
| 15. PROPORTIONAL VENTURI | |
| 16. WATER PRESSURE SWITCH | |
| 17. CONDENSATE COLLECTION SIPHON | |
| 18. STRAINER | |

F 100

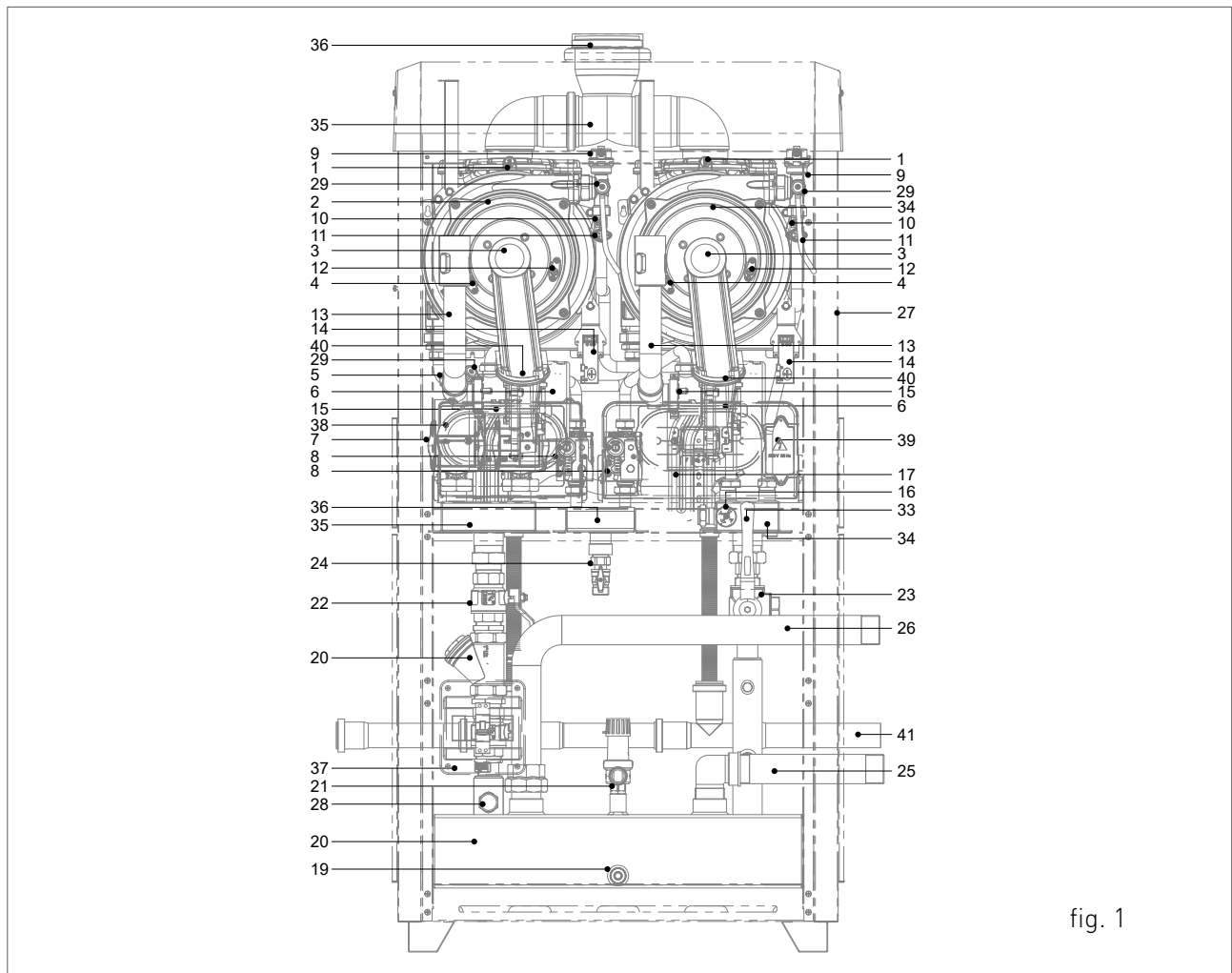


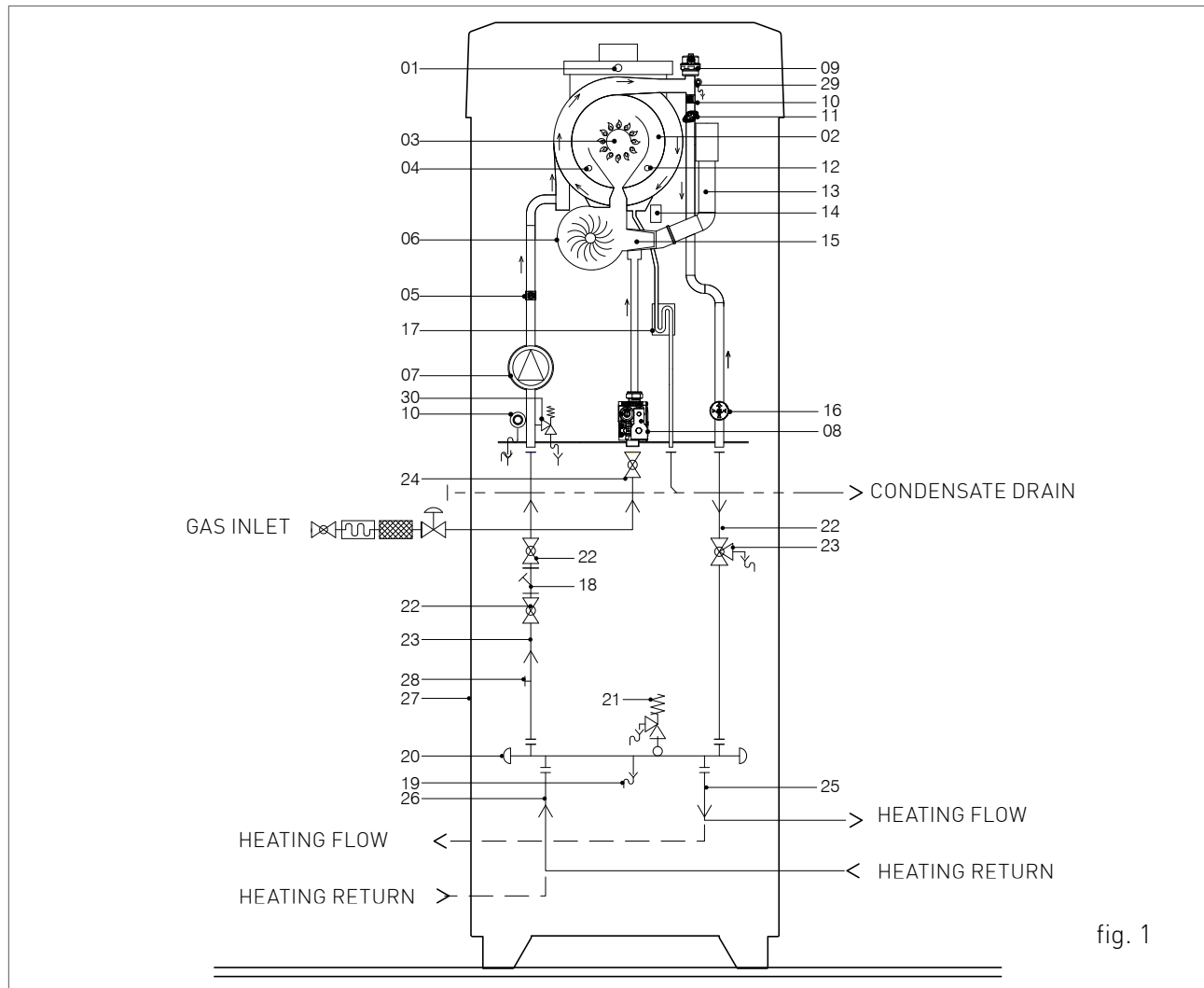
fig. 1

KEY

- | | |
|----------------------------------|-----------------------------------|
| 1. FUMES SAFETY THERMOFUSE | 23. ISOLATING THREE-WAY VALVE |
| 2. UNIT HEAT EXCHANGER | 24. GAS VALVE |
| 3. BURNER UNIT | 25. Ø1"1/2 HEATING FLOW FITTING |
| 4. DETECTION ELECTRODE | 26. Ø1"1/2 HEATING RETURN FITTING |
| 5. HEATING RETURN PROBE | 27. BOX |
| 6. ELECTRIC FAN | 28. EXPANSION VESSEL CONNECTION |
| 7. CIRCULATOR | 29. MANUAL AIR RELIEF VALVE |
| 8. GAS VALVE | 30. HEATING FLOW MANIFOLD |
| 9. AIR RELIEF VALVE | 31. HEATING RETURN MANIFOLD |
| 10. HEATING PROBE | 32. GAS MANIFOLD |
| 11. SAFETY THERMOSTAT | 33. HEATING FLOW MANIFOLD SENSOR |
| 12. LIGHT UP ELECTRODE | 34. MASTER UNIT HEAT EXCHANGER |
| 13. AIR SUCTION TUBE | 35. FLUE MANIFOLD |
| 14. START-UP TRANSFORMER | 36. FLUE EXHAUST FITTING |
| 15. PROPORTIONAL VENTURI | 37. ELECTRICAL CONNECTIONS BOX |
| 16. WATER PRESSURE SWITCH | 38. SLAVE CONTROL PANEL |
| 17. CONDENSATE COLLECTION SIPHON | 39. MASTER CONTROL PANEL |
| 18. STRAINER | 40. INTEGRATED NON-RETURN VALVE |
| 19. SYSTEM DRAIN VALVE | 41. CONDENSATE DRAIN MANIFOLD |
| 20. HYDRAULIC SEPARATOR | |
| 21. SAFETY VALVE | |
| 22. ISOLATING VALVE | |

6. WATER CIRCUIT

F 50



KEY

- | | |
|----------------------------|-----------------------------------|
| 1. FUMES SAFETY THERMOFUSE | 17. CONDENSATE COLLECTION SIPHON |
| 2. UNIT HEAT EXCHANGER | 18. STRAINER |
| 3. BURNER UNIT | 19. SYSTEM DRAIN VALVE |
| 4. DETECTION ELECTRODE | 20. HYDRAULIC SEPARATOR |
| 5. HEATING RETURN PROBE | 21. SAFETY VALVE |
| 6. ELECTRIC FAN | 22. ISOLATING VALVE |
| 7. CIRCULATOR | 23. ISOLATING THREE-WAY VALVE |
| 8. GAS VALVE | 24. GAS VALVE |
| 9. AIR RELIEF VALVE | 25. Ø1"1/2 HEATING FLOW FITTING |
| 10. HEATING PROBE | 26. Ø1"1/2 HEATING RETURN FITTING |
| 11. SAFETY THERMOSTAT | 27. BOX |
| 12. LIGHT UP ELECTRODE | 28. EXPANSION VESSEL CONNECTION |
| 13. AIR SUCTION TUBE | 29. MANUAL AIR RELIEF VALVE |
| 14. START-UP TRANSFORMER | |
| 15. PROPORTIONAL VENTURI | |
| 16. WATER PRESSURE SWITCH | |

F 100

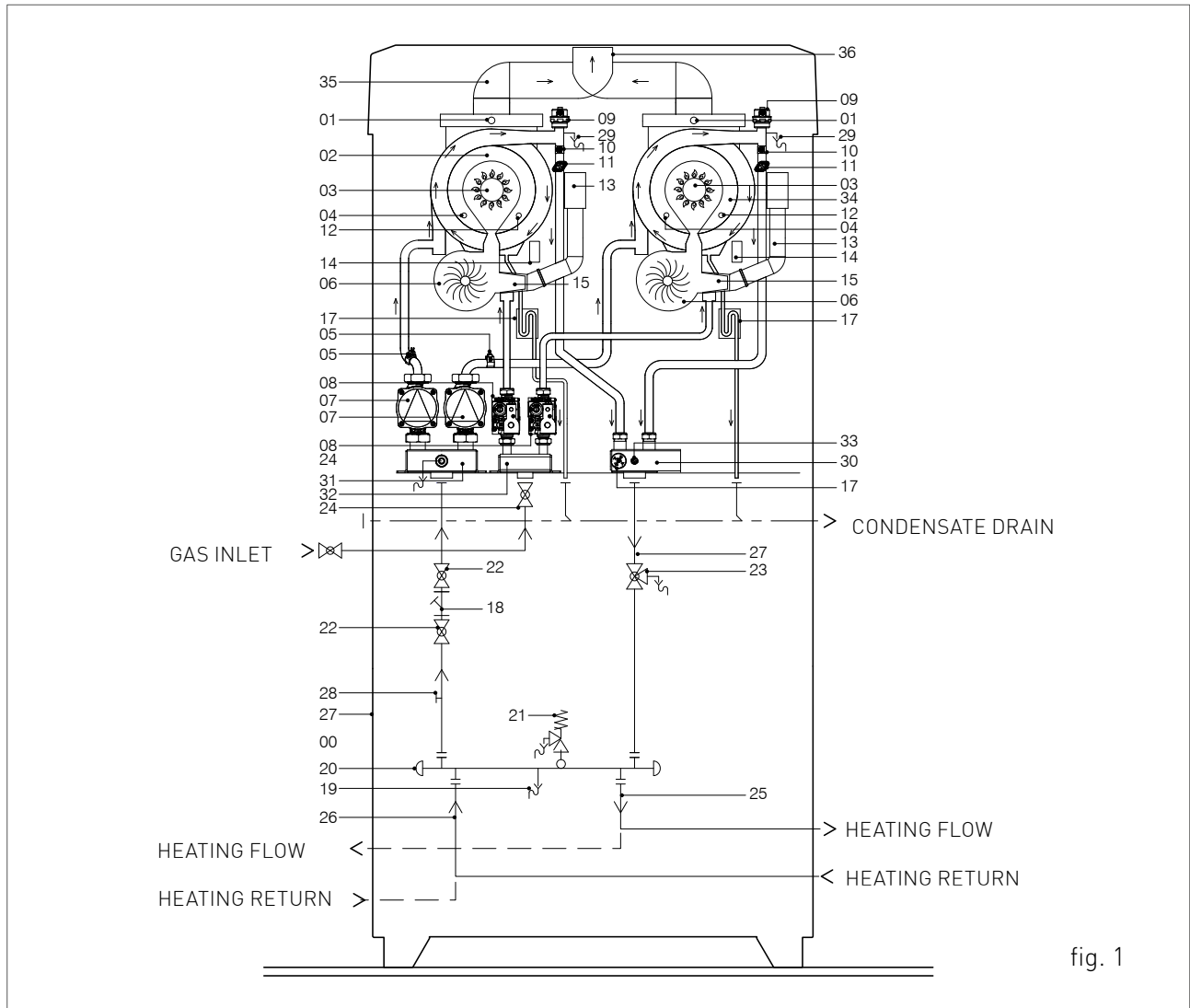


fig. 1

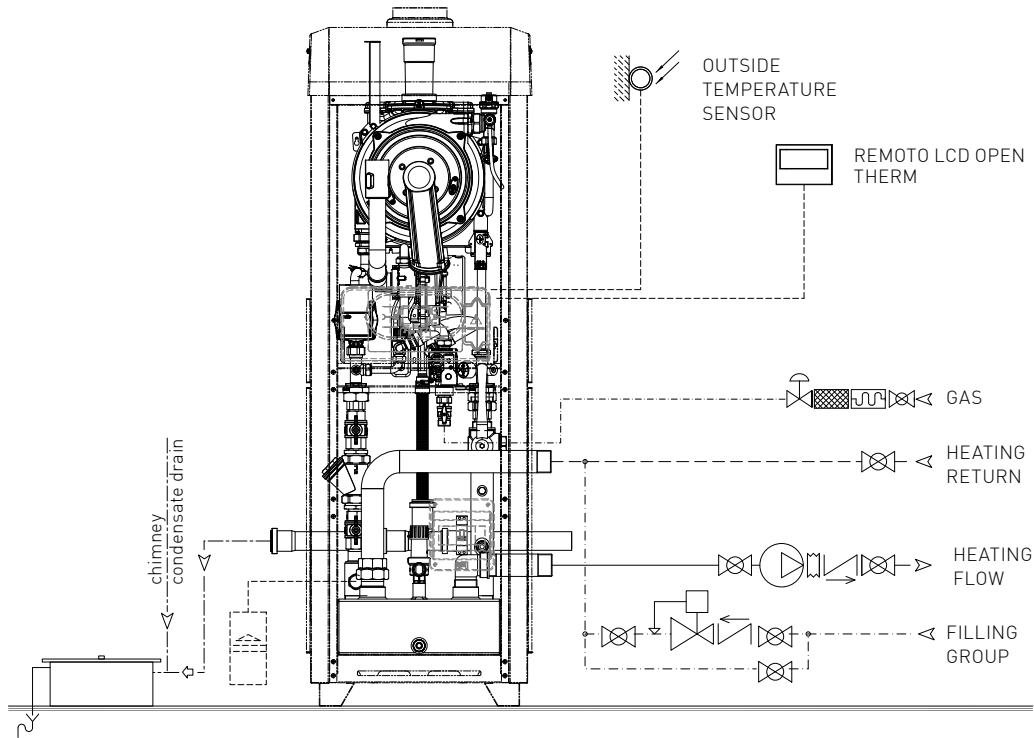
KEY

- | | |
|----------------------------------|-----------------------------------|
| 1. FUMES SAFETY THERMOFUSE | 20. HYDRAULIC SEPARATOR |
| 2. UNIT HEAT EXCHANGER | 21. SAFETY VALVE |
| 3. BURNER UNIT | 22. ISOLATING VALVE |
| 4. DETECTION ELECTRODE | 23. ISOLATING THREE-WAY VALVE |
| 5. HEATING RETURN PROBE | 24. GAS VALVE |
| 6. ELECTRIC FAN | 25. Ø1"1/2 HEATING FLOW FITTING |
| 7. CIRCULATOR | 26. Ø1"1/2 HEATING RETURN FITTING |
| 8. GAS VALVE | 27. BOX |
| 9. AIR RELIEF VALVE | 28. EXPANSION VESSEL CONNECTION |
| 10. HEATING PROBE | 29. MANUAL AIR RELIEF VALVE |
| 11. SAFETY THERMOSTAT | 30. HEATING FLOW MANIFOLD |
| 12. LIGHT UP ELECTRODE | 31. HEATING RETURN MANIFOLD |
| 13. AIR SUCTION TUBE | 32. GAS MANIFOLD |
| 14. START-UP TRANSFORMER | 33. HEATING FLOW MANIFOLD SENSOR |
| 15. PROPORTIONAL VENTURI | 34. MASTER UNIT HEAT EXCHANGER |
| 16. WATER PRESSURE SWITCH | 35. FLUE MANIFOLD |
| 17. CONDENSATE COLLECTION SIPHON | 36. FLUE EXHAUST FITTING |
| 18. STRAINER | |
| 19. SYSTEM DRAIN VALVE | |

7. SYSTEM MECHANICAL CIRCUIT

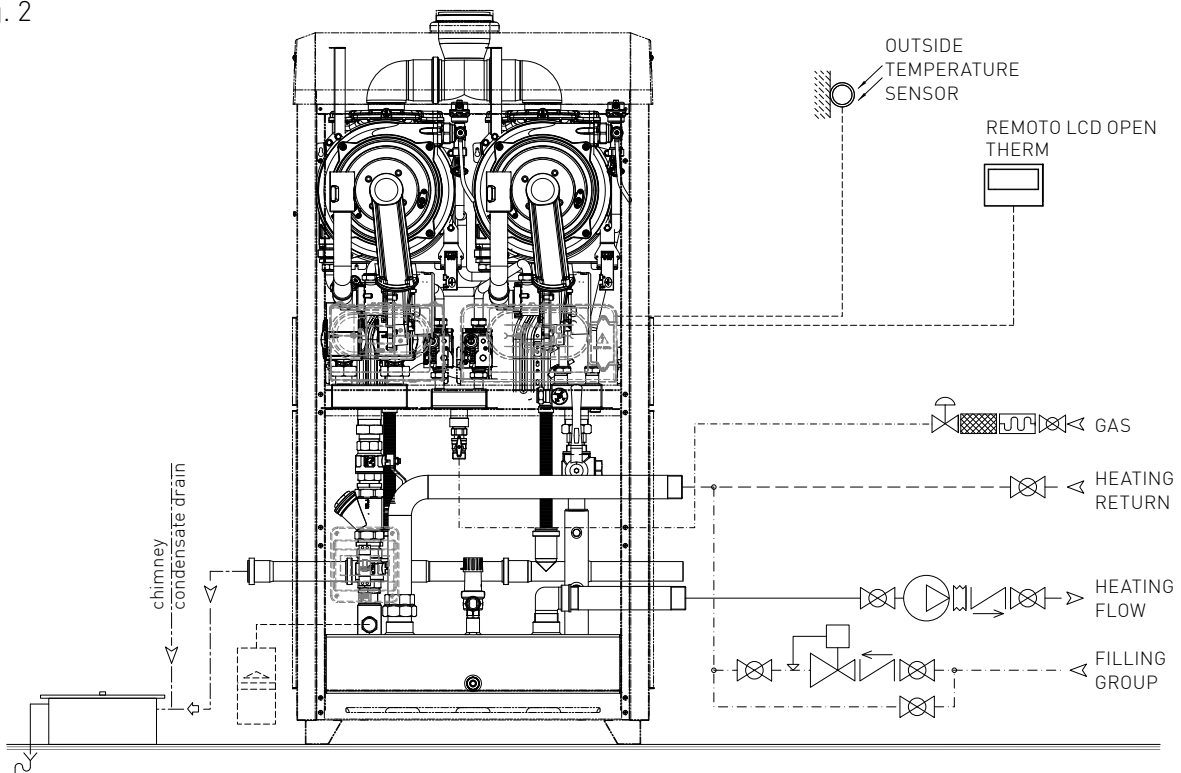
F 50

fig. 1



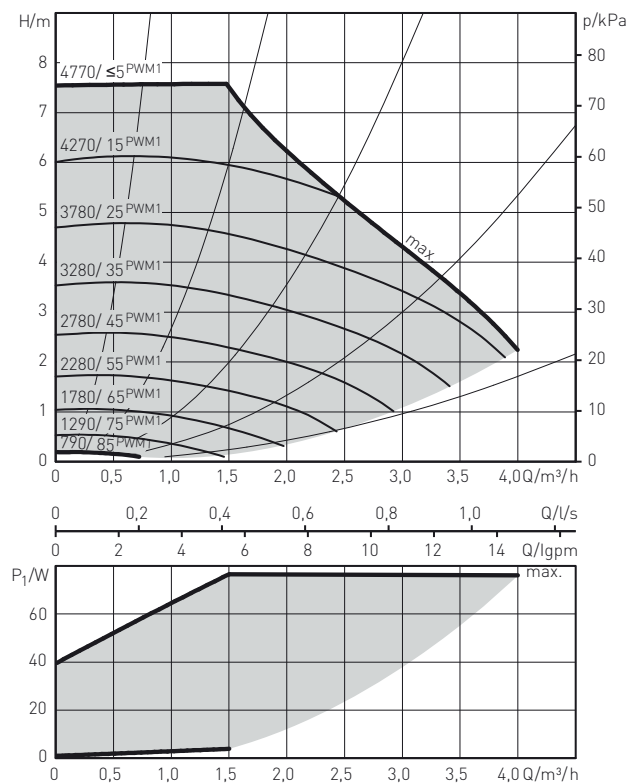
F 100

fig. 2

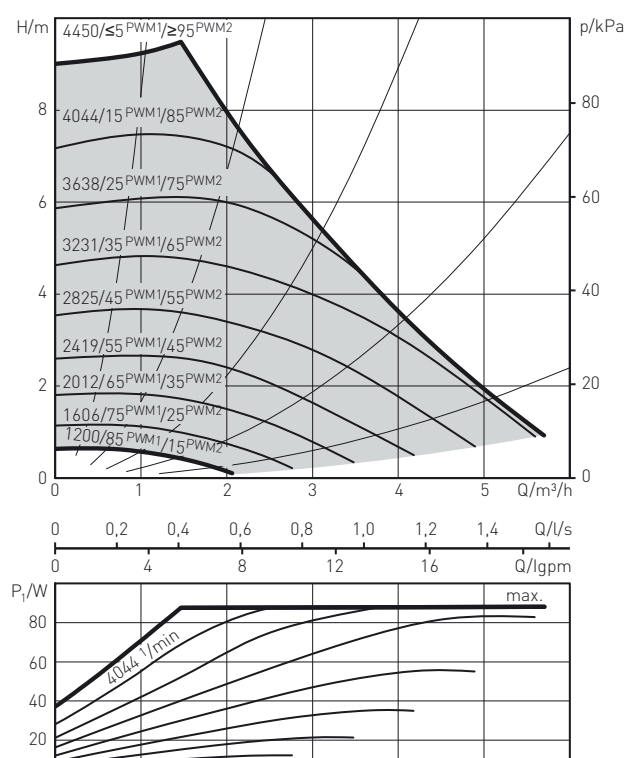


8. CIRCULATOR HEAD/FLOW DIAGRAM

CIRCULATOR

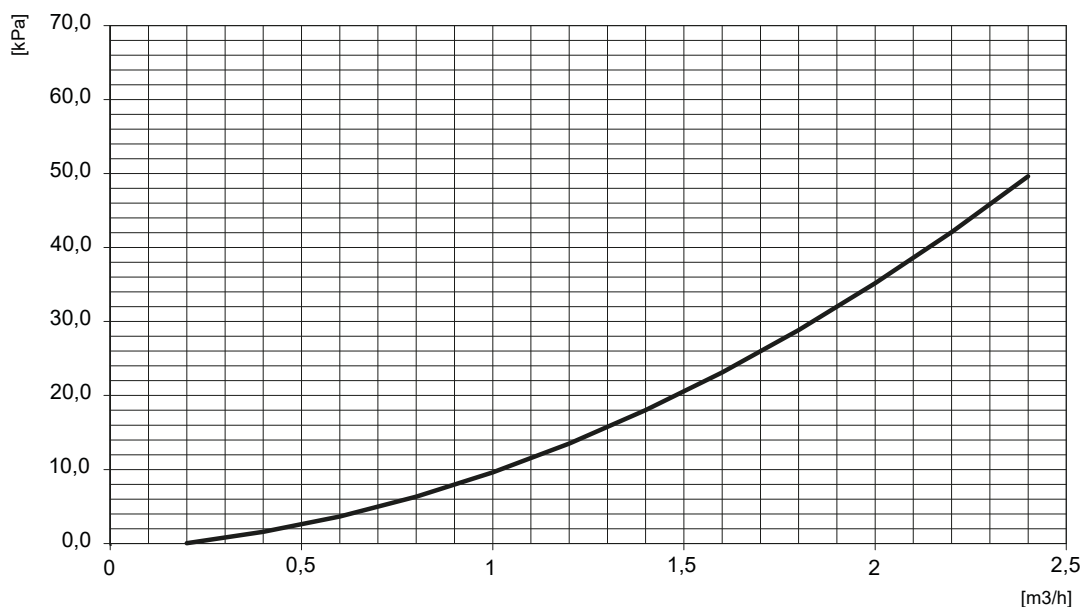


YP RS 15/7.5 - Standard head



SP 15/1.9 - Higher head (option)

INDIVIDUAL BOILER HEAD/FLOW DIAGRAM



9. 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				Secondary				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		
F 50	2150	80	60	3,48	2867	55	70	5,99	Z3 - 13 plate	inspected
				3,10				5,34	ZB250 – 50 plate	brazed
F 100	4300			4,85	5733			8,35	Z3 - 21 plate	inspected
				4,68				8,06	ZB400 – 50 plate	brazed

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

10. TYPES OF FUME EXHAUST SYSTEMS

F 50

STAILESS STEEL VERTICAL FLUE KIT Ø80 MM

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 and intake 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.

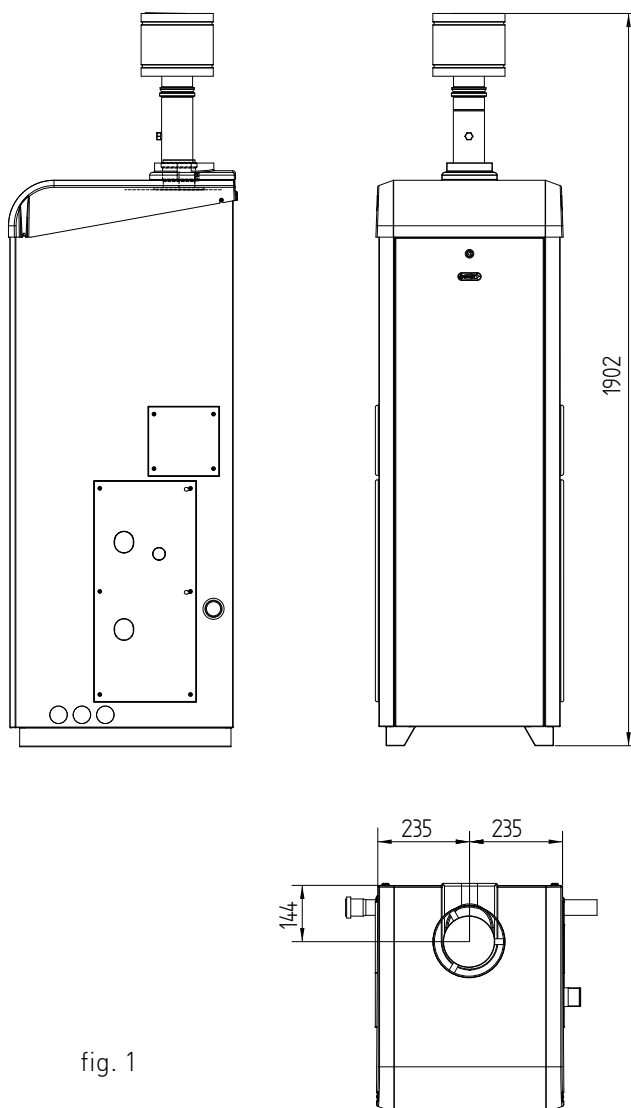


fig. 1

Description	Equivalent lenght [m]
Bend 90° Ø80 MF	2.4
Bend 45° Ø80 MF	1.2

F 100

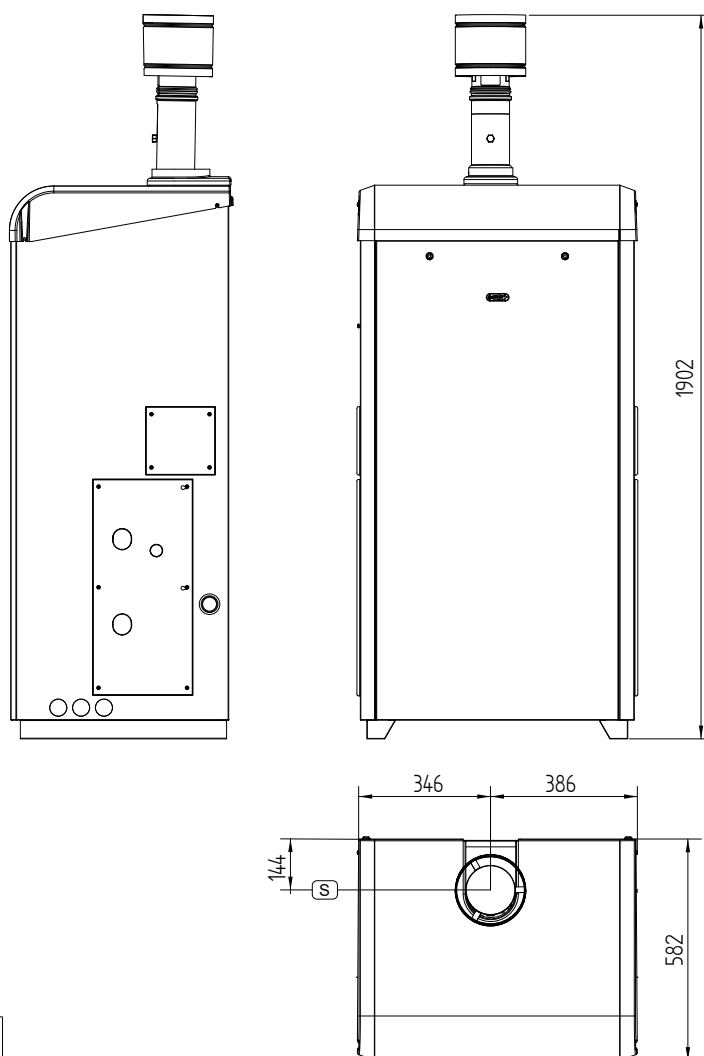
STAILESS STEEL VERTICAL FLUE KIT Ø100 mm

code 80019LA

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

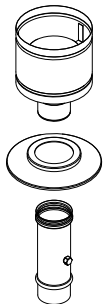
Please see the maximum discharge length in the table in chapter “technical data”.

The maximum discharge and intake 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.



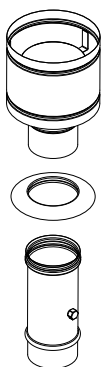
Description	Equivalent lenght [m]
Bend 90° Ø100 MF	3
Bend 45° Ø100 MF	1.6

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. WIRING DIAGRAMS

F 50

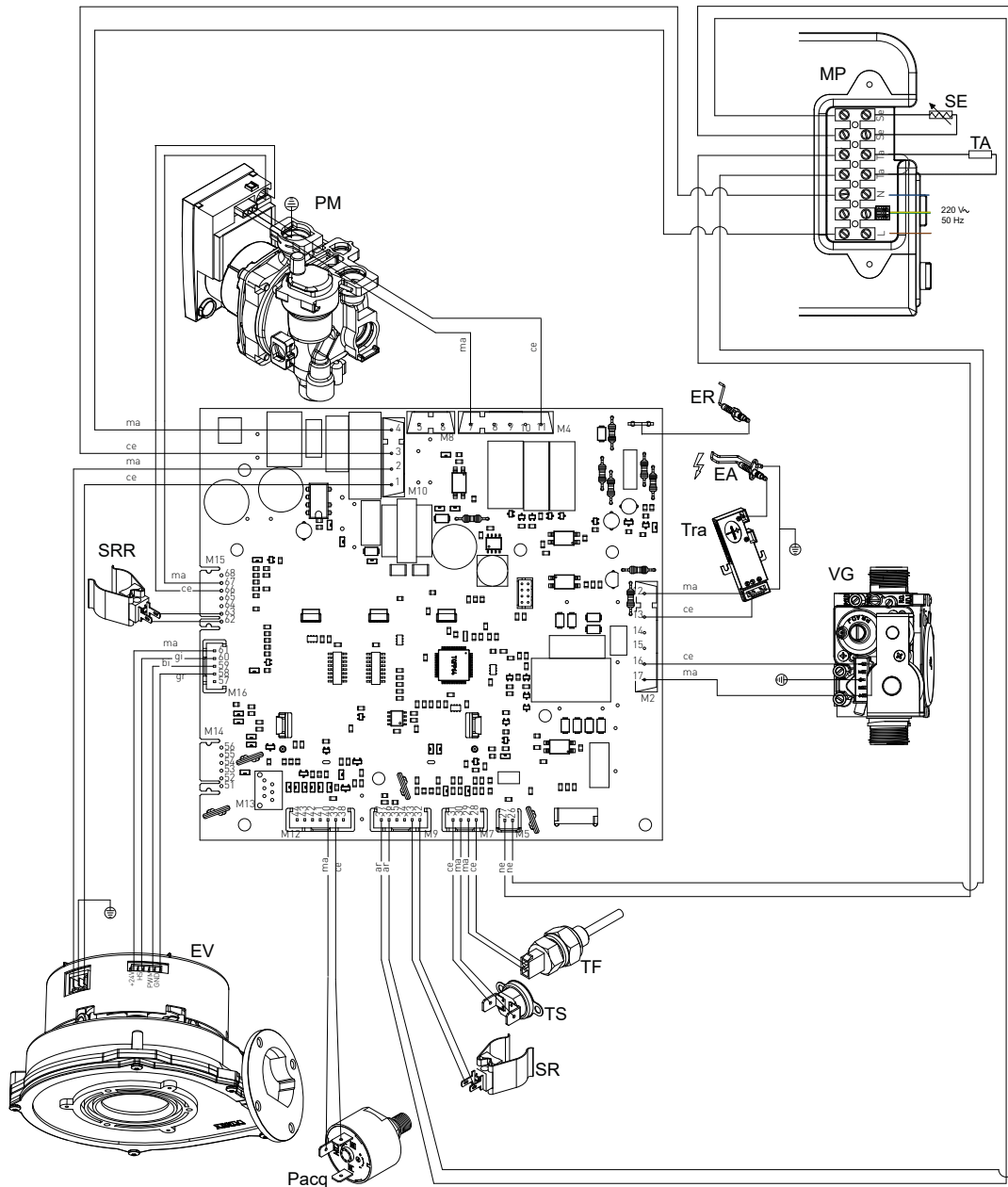


fig. 1

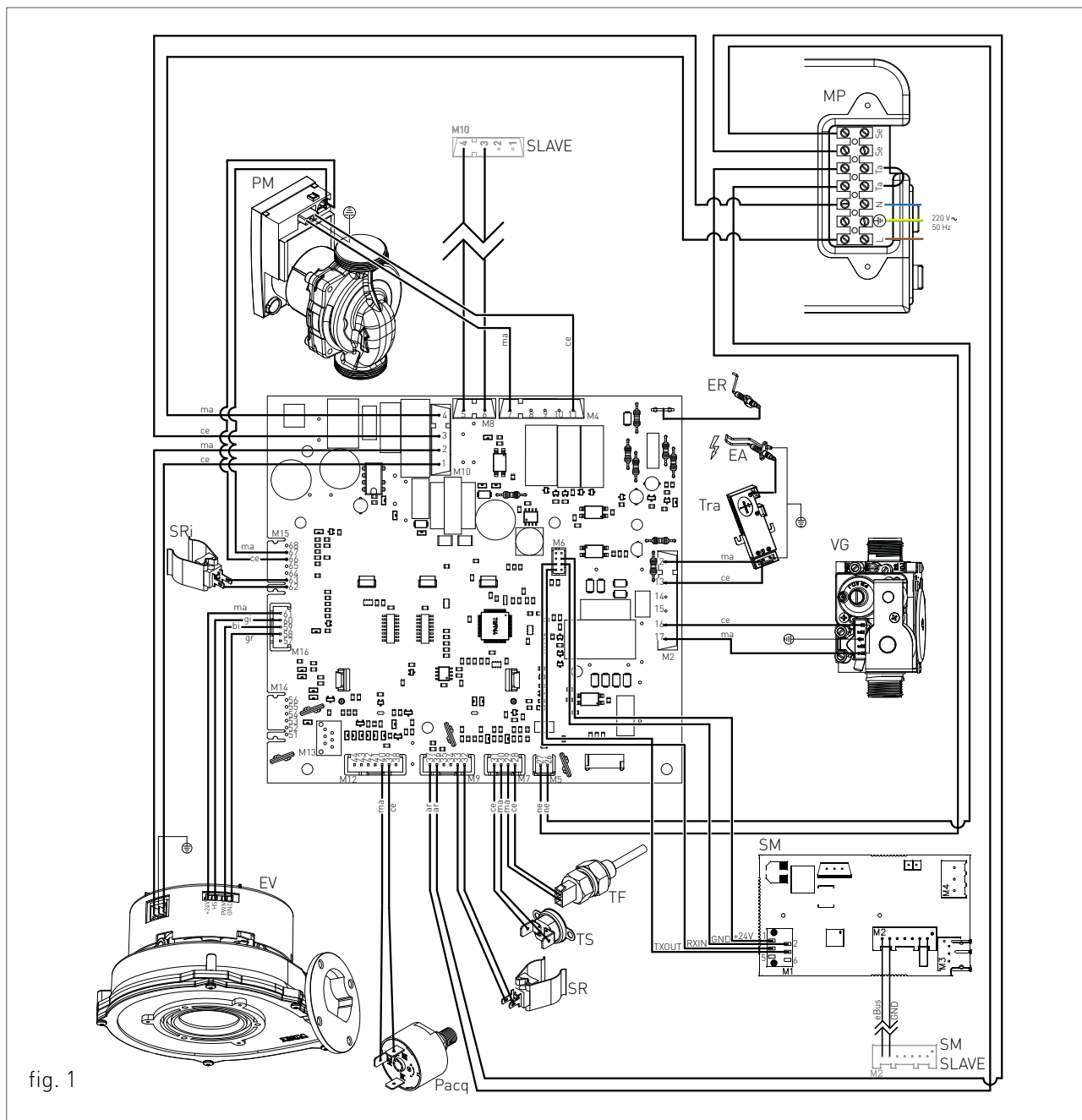
ER: DETECTION ELECTRODE
EA: START-UP ELECTRODE
CRE: CIRCULATOR MODULATING
VG: GAS VALVE
TRA: START-UP TRANSFORMER
SRR: HEATING RETURN PROBE

TS: SAFETY THERMOSTAT
PACQ: WATER PRESSURE SWITCH
TF: FUMES THERMOFUSE (102°C)
SR: HEATING PROBE
EV: ELECTRIC FAN

MP: PANEL TERMINAL
SE: EXTERNAL PROBE
TA: ENVIRONMENT THERMOSTAT
L: LINE
N: NEUTRAL
NE: BLACK

CE: BLUE
MA: BROWN
AR: ORANGE
GI: YELLOW
BI: WHITE
GR: GREY

F 100 - MASTER



ER: DETECTION ELECTRODE

EA: START-UP ELECTRODE

PM: MODULATING CIRCULATOR

VG: GAS VALVE

TRA: START-UP TRANSFORMER

SM: MODBUS BOARD

TS: SAFETY THERMOSTAT

PACQ: WATER PRESSURE SWITCH

SR: HEATING PROBE

EV: ELECTRIC FAN

TF: FUMES THERMOFUSE (102°C)

SRI: SYSTEM RETURN PROBE

MP: PANEL TERMINAL

SE: EXTERNAL PROBE

TA: ENVIRONMENT THERMOSTAT

L: LINE

N: NEUTRAL

NE: BLACK

CE: BLUE

MA: BROWN

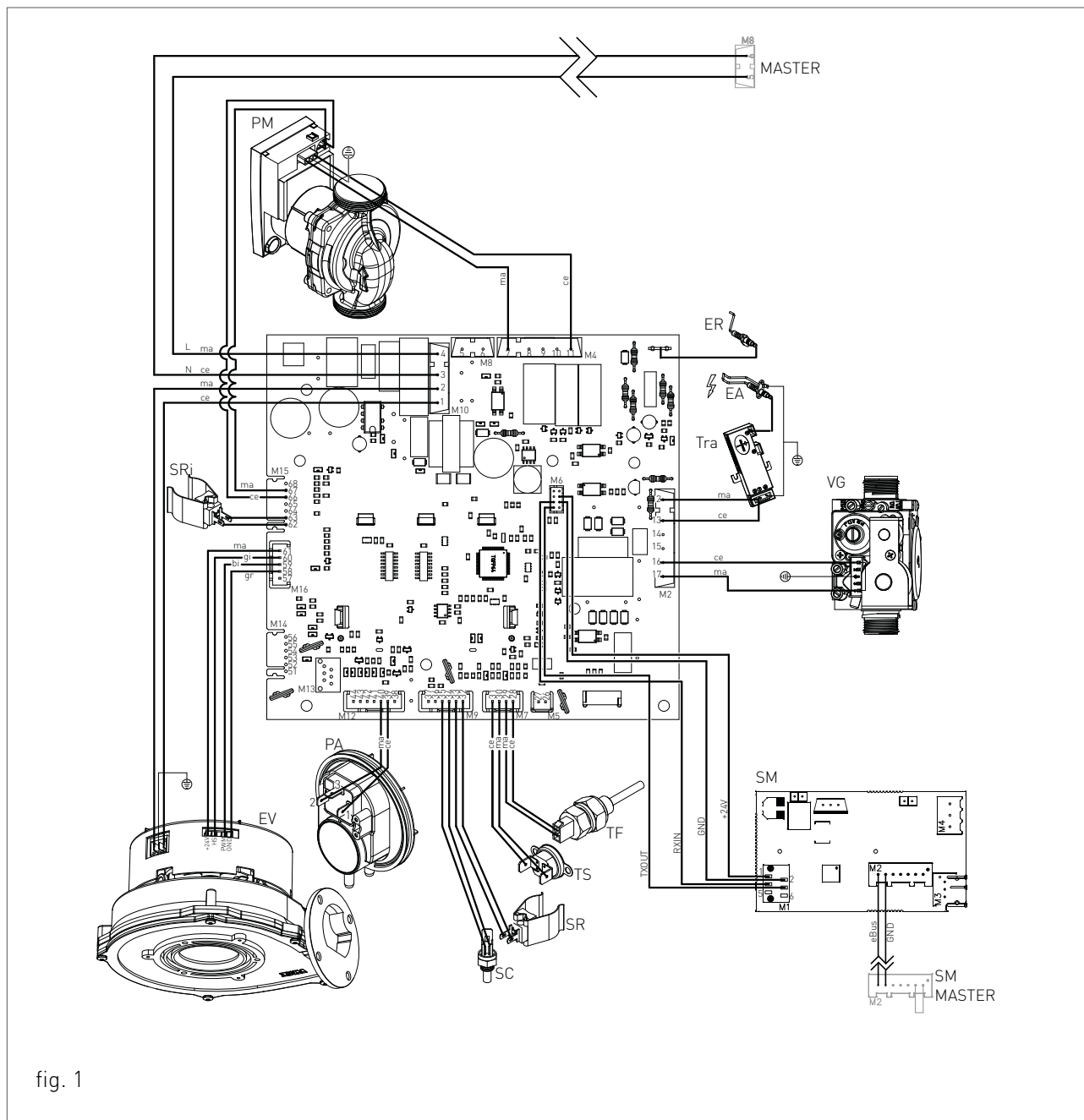
AR: ORANGE

GI: YELLOW

BI: WHITE

GR: GREY

F 100 - SLAVE



ER: DETECTION ELECTRODE
EA: START-UP ELECTRODE
PM: MODULATING CIRCULATOR
VG: GAS VALVE
TRA: START-UP TRANSFORMER
SC: COLLECTOR PROBE
PA: AIR PRESSURE SWITCH

TS: SAFETY THERMOSTAT
MP: PANEL TERMINAL
SR: HEATING PROBE
EV: ELECTRIC FAN
TF: FUMES THERMOFUSE (102°C)
SRI: SYSTEM RETURN PROBE

SM: MODBUS BOARD
L: LINE
N: NEUTRAL
NE: BLACK

CE: BLUE
MA: BROWN
AR: ORANGE
GI: YELLOW
BI: WHITE
GR: GREY

12. ACCESSORIES AND CONTROLS

Description	code		F 50	F 100
CLOUDWARMWIFIAPPLICATION (Remote control via WiFi) Free standing installation (wireless) In case of no WiFi network, you can access it via a GSM modem to be purchased separately	40-00291		√	√
CLOUDWARM WIFI APPLICATION (Remote control via WiFi) In-wall recessed installation (wired) In case of no WiFi network, you can access it via a GSM modem to be purchased separately	40-00292		√	√
EASY REMOTE - INDIVIDUAL INSTALLATION REMOTE CONTROLLER. To operate and control the boiler, individually installed. This device not only performs the chronostat function, but also controls and regulate the boiler remotely.	40-00017		√	√
WEEK – Weekly programmable THERMOSTAT A weekly settings thermostat that runs two different temperatures: day-night	86047LA		√	√
DAY – Daily programmable thermostat It is a daily programmable thermostat and runs two different temperatures: day-night.	86046LA		√	√
ZONE VALVES MANAGEMENT KIT It controls various zones combined with Easy Remote controller	65-00030		√	√
OUTDOOR TEMPERATURE SENSOR Accessory matched to the cascade controller for the sliding temperature of the system.	73518LA		√	√
CONDENSATE DISCHARGE PUMP	82156LA		√	√
STAINLESS STEEL VERTICAL FLUE KIT Ø80 W/ FLUE TERMINAL	50-00377		√	-
STAINLESS STEEL VERTICAL FLUE KIT Ø100 W/ FLUE TERMINAL	80019LA		-	√
BOX ASSEMBLY – DOUBLE UNIT	35-00176		√	√



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