Power-Tech R1KG
High Power

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1. GENERAL FEATURES

The R1KG 180 and R1KG 240 are stainless steel, high efficiency, fully modulating, floor standing gas boilers, made respectively of three, or four, primary heat exchangers of 60 kW each.

R1KG 180 and R1KG 240 are low environmental impacts (CO and Nox emissions) and extremely compact units, because of their vertical design.

R1KG 180 and R1KG 240 can be positioned side-to-side, or back-to-back, enabling a number of boilers to be installed in limited areas.

The standard supply includes the gas manifold, the the flue exhaust manifolds, and the condensate neutraliser; one circulating pump for each heat exchanger, an insulated heating flow/return hydraulic manifold connected on the back of the module and finally the electronic cascade controller.

These R1KG's have XP4 protection rating, meant for indoor installation only.

They feature all the benefits of the Radiant exchangers and their ample air/gas modulation ratio ratio up to 1:40.

The cascade controller allows the management of a total of two units of 240 kW each (8 heat exchangers in total), two booster pumps (for heating), two-storage tank load circulating pumps (or diverter valves), one DHW recirculation pump and two dedicated mixing valves for the management of mixed system.

The high head circulating pumps fitted as standard (11 meters/head) guarantee the correct circulation of the system in all operating modes.

2. 2. PRODUCTS TYPE

GENERAL INDICATIONS

The use of the cascade installation is able to offer the ideal output solution according to the different needs.

Boilers are in fact designed to suit cascade installations, up to a maximum of 4 boilers for a total output of 944 kW allowing a continuous output modulation.

Attention: For solutions with the installation of back-to-back generators, please contact our technical department.

POSSIBLE CONFIGURATIONS

SINGLE UNIT MODEL HEAT INPUT MAX. [kW]	R1KG 180 [1]	R1KG 180 A	R1KG 240 [1]	R1KG 240 A	HEAT INPUT [kW]		HEAT OUTPUT (80-60°C) [kW]	
					Min.	Max.	Min.	Max.
single unit installation								
177	1				6	177	5,75	173,11
236			1		6	236	5,75	230,81
cascade installation					6			
354	1	1			6	354	5,75	346.22
413	1			1	6	413	5.75	403,92
472			1	1	6	472	5,75	461.62
531	2	1			6	531	5,75	519.33
590	1	1	1		6	590	5,75	577.03
649	1		1	1	6	649	5,75	634.73
708			2	1	6	708	5,75	692.43
826	2			2	6	826	5,75	807.84
885	1		1	2	6	885	5,75	865.54
944			2	2	6	944	5,75	923.24

NOTE: [1] Master unit complete with controller - Already installed on the R1KG 180 - 240 model.

3. TECHNICAL DATA

SINGLE INSTALLATION

Model		R1KG 180 [2]	R1KG 180 A	R1KG 240 [2]	R1KG 240 A
Gas category	category	$II_{2H3B/P}$	$II_{2H3B/P}$	$II_{2H3B/P}$	$II_{2H3B/P}$
Flue type	type	B23-B23p	B23-B23p	B23-B23p	B23-B23p
Energy efficientcy 92/42/CEE	n° stars	4	4	4	4
Heat Input max (C.H.)	kW	177	177	236	236
Heat Input min (C.H.)	kW	6	6	6	6
Heat Output max. - 60/80°C	kW	173,11	173,11	230,81	230,81
Heat Output min. - 60/80°C	kW	5,75	5,75	5,75	5,75
Heat Output max. - 30/50°C	kW	188,51	188,51	251,34	251,34
Heat Output min. - 30/50°C	kW	6,44	6,44	6.44	6.44
Heat Output max at 30% Heat Input average - return 30°C	kW	29,59	29,59	39,13	39,13
Efficiency at 100% Heat Input - 60/80°C	%	97,8	97,8	97,8	97,8
Efficiency at 30% Heat Input - return 30°C	%	108,3	108,3	108,3	108,3
Heat Input average efficiency - 60/80°C	%	97.0	97.0	97.0	97.0
Heat Output max at 30% Heat Input average - return 47°C	%	102,70%	102,70%	102,70%	102,70%
Efficiency at 30% Heat Input average - return 30°C	%	107,80%	107,80%	107,80%	107,80%
Efficiency Heat Output min. - 60/80°C	%	95,80%	95,80%	95,80%	95,80%
Efficiency at 100% Heat Input - 30/50°C	%	106,50%	106,50%	106,50%	106,50%
Efficiency Heat Output min - 30/50°C	%	107,30%	107,30%	107,30%	107,30%
Combustion data					
Maximum combustion efficiency	%	97,60%	97,60%	97,60%	97,60%
Minimum combustion efficiency	%	98,20%	98,20%	98,20%	98,20%
Flue efficiency losses with burner on (Heat Input max.)	%	2,40	2,40	2,40	2,40
Flue efficiency losses with burner on (Heat Input min.)	%	1,80	1,80	1,80	1,80
Flue efficiency losses with burner off	%	0.02	0.02	0.02	0.02
Casing efficiency losses (Heat Input max.)	%	1,10	1,10	1,10	1,10
Casing efficiency losses (Heat Input min.)	%	2,40	2,40	2,40	2,40
Casing efficiency losses with burner off	%	0.03	0.03	0.03	0.03
Fumes temperature - Heat Input max.	°C	74,20	74,20	74,20	74,20
Fumes temperature - Heat Input min.	°C	58,70	58,70	58,70	58,70
Fumes mass - Heat Input max.	g/s	79,86	79,86	106,48	106,48
Fumes mass - Heat Input min.	g/s	2,70	2,70	2.70	2.70
CO2 Heat Input max. - G20	%	9,20 - 9,00	9,20 - 9,00	9.4-9.2	9.4-9.2
CO2 Heat Input min. - G20	%	8,90 - 8,70	8,90 - 8,70	9.1-8.9	9.1-8.9
CO2 Heat Input max. - G30	%	11,40 - 11,20	11,40 - 11,20	11.4 - 11.2	11.4 - 11.2
CO2 Heat Input min. - G30	%	10,80 - 10,60	10,80 - 10,60	10.8 - 10.6	10.8 - 10.6
CO2 Heat Input max. - G31	%	10,20 - 10,00	10,20 - 10,00	10.3 - 10.1	10.3 - 10.1
CO2 Heat Input min. - G31	%	9,90 - 9,70	9,90 - 9,70	9.8- 9.6	9.8- 9.6
CO Heat Input max	ppm	91	91	91	91
CO Heat Input max.	ppm	1	1	1	1
Weighted CO (0% O2)	ppm	12	12	12	12
NOx	class	6	6	6	6
Weighted NOx (0% O2)	mg/kWh	32	32	32	32
Heating circuit					

Model		R1KG 180 [2]	R1KG 180 A	R1KG 240 [2]	R1KG 240 A
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	80	80	94	94
Dimensions					
Width	mm	712	712	712	712
Depth	mm	830	830	830	830
Height	mm	1880	1880	1880	1880
Gross weight	kg	197	197	226	226
Hydraulic Connections					
C.H. Flow	DN - PN	65 - 6	65 - 6	65 - 6	65 - 6
Gas	Ø	1"1/2	1"1/2	1"1/2	1"1/2
C.H. Return	DN - PN	65 - 6	65 - 6	65 - 6	65 - 6
Condensate drain	Ø	29	29	29	29
Flue systems					
Fan - Max. available pressure	Pa	100 [1]	100 [1]	100 [1]	100 [1]
Fan - Min. available pressure	Pa	21.5 [1]	21.5 [1]	21.5 [1]	21.5 [1]
Flue connection	Ø	160	160	160	160
Max. Flue length Ø160 single pipe	Ø	10	10	10	10
Linear length loss for the addition of one 45°/90° flue bend	m	4	4	4	4
Electrical specifications					
Voltage-frequency	V/Hz	220-230/50	220-230/50	220-230/50	220-230/50
Max Power consumption	W	328	324	436	432
Max Power consumption - boiler pump (100%)	W	165	165	220	220
Electric power with boiler OFF	W	14	14	14	14
Protection rating	IP	X4D	X4D	X4D	X4D
Gas supply					
Supply pressure - G20	mbar	20	20	20	20
Supply pressure max. - G20	mbar	25	25	25	25
Supply pressure min. - G20	mbar	15	15	15	15
Fan speed Max. HEATING output - G20	Hz	250	250	250	250
Fan speed Min. HEATING output - G20	Hz	55	55	55	55
Gas consumption - G20	m^3/h	18.73	18.73	24.97	24.97
Supply pressure - G30	mbar	28-30	28-30	28-30	28-30
Supply pressure max. - G30	mbar	35	35	35	35
Supply pressure min. - G30	mbar	20	20	20	20
Fan speed Max. HEATING output - G30	Hz	228	228	228	228
Fan speed Min. HEATING output - G30	Hz	55	55	55	55
Gas consumption - G30	kg/h	13.96	13.96	18.61	18.61
Supply pressure - G31	mbar	37	37	37	37
Supply pressure max. - G31	mbar	45	45	45	45
Supply pressure min. - G31	mbar	25	25	25	25
Fan speed Max. HEATING output - G31	Hz	248	248	248	248
Fan speed Min. HEATING output - G31	Hz	55	55	55	55
Gas consumption - G31	kg/h	13.75	13.75	18.33	18.33

Note:

[1] Individual thermal units; [2] Master unit complete with controller.

CASCADE INSTALLATION

HEAT INPUT [kW]		354	413	472
COMPOSITION		n°1xR1KG 180 [2] + n°1xR1KG 180 A	n°1xR1KG 180 [2] + n°1xR1KG 240 A	n°1xR1KG 240 [2] + n°1xR1KG 240 A
Gas category	category	$II_{2H3B/P}$	$II_{2H3B/P}$	$II_{2H3B/P}$
Flue type	type	B23-B23p	B23-B23p	B23-B23p
Energy efficientcy 92/42/CEE	n° stars	4	4	4
Heat Input max (C.H.)	kW	354	413	472
Heat Input min (C.H.)	kW	6	6	6
Heat Output max. - 60/80°C	kW	346,22	403,92	461.62
Heat Output min. - 60/80°C	kW	5,75	5,75	5,75
Heat Output max. - 30/50°C	kW	377,02	439,85	502.68
Heat Output min. - 30/50°C	kW	6,44	6,44	6.44
Heat Output max at 30% Heat Input average - return 30°C	kW	59.18	67.72	78.26
Efficiency at 100% Heat Input - 60/80°C	%	97,8	97,8	97,8
Efficiency at 30% Heat Input - return 30°C	%	108,3	108,3	108,3
Heat Input average efficiency - 60/80°C	%	97,0	97,0	97.0
Heat Output max at 30% Heat Input average - return 47°C	%	102,70%	102,70%	102,70%
Efficiency at 30% Heat Input average - return 30°C	%	107,80%	107,80%	107,80%
Efficiency Heat Output min. - 60/80°C	%	95,80%	95,80%	95,80%
Efficiency at 100% Heat Input - 30/50°C	%	106,50%	106,50%	106,50%
Efficiency Heat Output min - 30/50°C	%	107,30%	107,30%	107,30%
Combustion data				
Maximum combustion efficiency	%	97,60%	97,60%	97,60%
Minimum combustion efficiency	%	98,20%	98,20%	98,20%
Flue efficiency losses with burner on (Heat Input max.)	%	2,40	2,40	2,40
Flue efficiency losses with burner on (Heat Input min.)	%	1,80	1,80	1,80
Flue efficiency losses with burner off	%	0.02	0.02	0.02
Casing efficiency losses (Heat Input max.)	%	1,10	1,10	1,10
Casing efficiency losses (Heat Input min.)	%	2,40	2,40	2,40
Casing efficiency losses with burner off	%	0.03	0.03	0.03
Fumes temperature - Heat Input max.	°C	74,20	74,20	74,20
Fumes temperature - Heat Input min.	°C	58,70	58,70	58,70
Fumes mass - Heat Input max.	g/s	159.72	186,34	212.96
Fumes mass - Heat Input min.	g/s	2,70	2,70	2.70
CO2 Heat Input max. - G20	%	9,20 - 9,00	9,20 - 9,00	9.4-9.2
CO2 Heat Input min. - G20	%	8,90 - 8,70	8,90 - 8,70	9.1-8.9
CO2 Heat Input max. - G30	%	11,40 - 11,20	11,40 - 11,20	11.4 - 11.2
CO2 Heat Input min. - G30	%	10,80 - 10,60	10,80 - 10,60	10.8 - 10.6
CO2 Heat Input max. - G31	%	10,20 - 10,00	10,20 - 10,00	10.3 - 10.1
CO2 Heat Input min. - G31	%	9,90 - 9,70	9,90 - 9,70	9.8- 9.6
CO Heat Input max	ppm	91	91	91
CO Heat Input max.	ppm	1	1	1
Weighted CO (0% O2)	ppm	12	12	12
NOx	class	6	6	6
Weighted NOx (0% O2)	mg/kWh	32	32	32
Heating circuit				
Temperature setting - Central heating	°C	30-80 / 25-45	30-80 / 25-45	30-80/25-45
Max. operating temperature - Central heating	°C	80	80	80

HEAT INPUT [kW]		354	413	472
Max. operating pressure - Central heating	bar	3	3	3
Min. operating pressure - Central heating	bar	0.3	0.3	0.3
Primary circuit water content	litres	160	174	188
Dimensions				
Width	mm	1843	1843	1843
Depth	mm	1059	1059	1059
Height	mm	1880	1880	1880
Gross weight	kg	394	423	452
Hydraulic Connections				
C.H. Flow	DN - PN	100 - 6	100 - 6	100 - 6
Gas	Ø	1"1/2	1"1/2	1"1/2
C.H. Return	DN - PN	100 - 6	100 - 6	100 - 6
Condensate drain	Ø	29	29	29
Flue systems				
Fan - Max. available pressure	Pa	100	100	100
Fan - Min. available pressure	Pa	21.5	21.5	21.5
Electrical specifications				
Voltage-frequency	V/Hz	220-230/50	220-230/50	220-230/50
Max Power consumption	W	652	324	868
Max Power consumption - boiler pump (100%)	W	330	165	440
Electric power with boiler OFF	W	14	14	14
Protection rating	IP	X4D	X4D	X4D
Gas supply				
Supply pressure - G20	mbar	20	20	20
Supply pressure max. - G20	mbar	25	25	25
Supply pressure min. - G20	mbar	15	15	15
Fan speed Max. HEATING output - G20	Hz	250 [1]	250 [1]	250 [1]
Fan speed Min. HEATING output - G20	Hz	55 [1]	55 [1]	55 [1]
Gas consumption - G20	m^3/h	37.46	43.70	49.94
Supply pressure - G30	mbar	28-30	28-30	28-30
Supply pressure max. - G30	mbar	35	35	35
Supply pressure min. - G30	mbar	20	20	20
Fan speed Max. HEATING output - G30	Hz	228 [1]	228 [1]	228 [1]
Fan speed Min. HEATING output - G30	Hz	55 [1]	55 [1]	55 [1]
Gas consumption - G30	kg/h	27.92	32.57	37.22
Supply pressure - G31	mbar	37	37	37
Supply pressure max. - G31	mbar	45	45	45
Supply pressure min. - G31	mbar	25	25	25
Fan speed Max. HEATING output - G31	Hz	248 [1]	248 [1]	248 [1]
Fan speed Min. HEATING output - G31	Hz	55 [1]	55 [1]	55 [1]
Gas consumption - G31	kg/h	27.50	32.08	36.66

Note:

[1] Individual thermal units; [2] Master unit complete with controller;

HEAT INPUT [kW]		**531**	**590**	**649**
COMPOSITION		**n°2xR1KG 180 [2] + n°1xR1KG 180 A**	**n°1xR1KG 180 [2] + n°1xR1KG 180 A n°1xR1KG 240 [2]**	**n°1xR1KG 180 [2] + n°1xR1KG 240 [2] n°1xR1KG 240 A**
Gas category	category	$II_{2H3B/P}$	$II_{2H3B/P}$	$II_{2H3B/P}$
Flue type	type	B23-B23p	B23-B23p	B23-B23p
Energy efficientcy 92/42/CEE	n° stars	4	4	4
Heat Input max (C.H.)	kW	531	590	649
Heat Input min (C.H.)	kW	6	6	6
Heat Output max. - 60/80°C	kW	519.33	577.03	634.73
Heat Output min. - 60/80°C	kW	5,75	5,75	5,75
Heat Output max. - 30/50°C	kW	565.53	628.36	691.19
Heat Output min. - 30/50°C	kW	6,44	6.44	6,44
Heat Output max at 30% Heat Input average - return 30°C	kW	88.77	98.31	107.85
Efficiency at 100% Heat Input - 60/80°C	%	97,8	97,8	97,8
Efficiency at 30% Heat Input - return 30°C	%	108,3	108,3	108,3
Heat Input average efficiency - 60/80°C	%	97.0	97.0	97.0
Heat Output max at 30% Heat Input average - return 47°C	%	102,70%	102,70%	102,70%
Efficiency at 30% Heat Input average - return 30°C	%	107,80%	107,80%	107,80%
Efficiency Heat Output min. - 60/80°C	%	95,80%	95,80%	95,80%
Efficiency at 100% Heat Input - 30/50°C	%	106,50%	106,50%	106,50%
Efficiency Heat Output min - 30/50°C	%	107,30%	107,30%	107,30%
Combustion data				
Maximum combustion efficiency	%	97,60%	97,60%	97,60%
Minimum combustion efficiency	%	98,20%	98,20%	98,20%
Flue efficiency losses with burner on (Heat Input max.)	%	2,40	2,40	2,40
Flue efficiency losses with burner on (Heat Input min.)	%	1,80	1,80	1,80
Flue efficiency losses with burner off	%	0.02	0.02	0.02
Casing efficiency losses (Heat Input max.)	%	1,10	1,10	1,10
Casing efficiency losses (Heat Input min.)	%	2,40	2,40	2,40
Casing efficiency losses with burner off	%	0.03	0.03	0.03
Fumes temperature - Heat Input max.	°C	74,20	74,20	74,20
Fumes temperature - Heat Input min.	°C	58,70	58,70	58,70
Fumes mass - Heat Input max.	g/s	239.58	266.20	292.82
Fumes mass - Heat Input min.	g/s	2,70	2.70	2,70
CO2 Heat Input max. - G20	%	9,20 - 9,00	9.4-9.2	9,20 - 9,00
CO2 Heat Input min. - G20	%	8,90 - 8,70	9.1-8.9	8,90 - 8,70
CO2 Heat Input max. - G30	%	11,40 - 11,20	11.4 - 11.2	11,40 - 11,20
CO2 Heat Input min. - G30	%	10,80 - 10,60	10.8 - 10.6	10,80 - 10,60
CO2 Heat Input max. - G31	%	10,20 - 10,00	10.3 - 10.1	10,20 - 10,00
CO2 Heat Input min. - G31	%	9,90 - 9,70	9.8- 9.6	9,90 - 9,70
CO Heat Input max	ppm	91	91	91
CO Heat Input max.	ppm	1	1	1
Weighted CO (0% O2)	ppm	12	12	12
NOx	class	6	6	6
Weighted NOx (0% O2)	mg/kWh	32	32	32
Heating circuit				
Temperature setting - Central heating	°C	30-80 / 25-45	30-80/25-45	30-80 / 25-45
Max. operating temperature - Central heating	°C	80	80	80
Max. operating pressure - Central heating	bar	3	3	3

HEAT INPUT [kW]		531	590	649
Min. operating pressure - Central heating	bar	0.3	0.3	0.3
Primary circuit water content	litres	240	254	268
Dimensions				
Width	mm	2736	2736	2736
Depth	mm	1059	1059	1059
Height	mm	1880	1880	1880
Gross weight	kg	591	620	649
Hydraulic Connections				
C.H. Flow	DN - PN	100 - 6	100 - 6	100 - 6
Gas	Ø	1"1/2	1"1/2	1"1/2
C.H. Return	DN - PN	100 - 6	100 - 6	100 - 6
Condensate drain	Ø	29	29	29
Flue systems				
Fan - Max. available pressure	Pa	100	100	100
Fan - Min. available pressure	Pa	21.5	21.5	21.5
Electrical specifications				
Voltage-frequency	V/Hz	220-230/50	220-230/50	220-230/50
Max Power consumption	W	976	1088	1196
Max Power consumption - boiler pump (100%)	W	495	550	605
Electric power with boiler OFF	W	14	14	14
Protection rating	IP	X4D	X4D	X4D
Gas supply				
Supply pressure - G20	mbar	20	20	20
Supply pressure max. - G20	mbar	25	25	25
Supply pressure min. - G20	mbar	15	15	15
Fan speed Max. HEATING output - G20	Hz	250	250 [1]	250
Fan speed Min. HEATING output - G20	Hz	55	55 [1]	55
Gas consumption - G20	m^3/h	56.19	62.43	68.67
Supply pressure - G30	mbar	28-30	28-30	28-30
Supply pressure max. - G30	mbar	35	35	35
Supply pressure min. - G30	mbar	20	20	20
Fan speed Max. HEATING output - G30	Hz	228	228 [1]	228
Fan speed Min. HEATING output - G30	Hz	55	55 [1]	55
Gas consumption - G30	kg/h	41.88	46.53	51.18
Supply pressure - G31	mbar	37	37	37
Supply pressure max. - G31	mbar	45	45	45
Supply pressure min. - G31	mbar	25	25	25
Fan speed Max. HEATING output - G31	Hz	248	248 [1]	248
Fan speed Min. HEATING output - G31	Hz	55	55 [1]	55
Gas consumption - G31	kg/h	41.25	45.83	50.41

Note:

[1] Individual thermal units; [2] Master unit complete with controller;

HEAT INPUT [kW]			**708**	**826**
COMPOSITION			**n°2xR1KG 240** [2] **+ n°1xR1KG 240 A**	**n°2xR1KG 180** [2] **+ n°2xR1KG 240 A**
Gas category	category		$II_{2H3B/P}$	$II_{2H3B/P}$
Flue type	type		B23-B23p	B23-B23p
Energy efficientcy 92/42/CEE	n° stars		4	4
Heat Input max (C.H.)	kW		708	826
Heat Input min (C.H.)	kW		6	6
Heat Output max. - 60/80°C	kW		692.43	807.84
Heat Output min. - 60/80°C	kW		5,75	5,75
Heat Output max. - 30/50°C	kW		754.02	879.70
Heat Output min. - 30/50°C	kW		6.44	6,44
Heat Output max at 30% Heat Input average - return 30°C	kW		117.39	137.44
Efficiency at 100% Heat Input - 60/80°C	%		97,8	97,8
Efficiency at 30% Heat Input - return 30°C	%		108,3	108,3
Heat Input average efficiency - 60/80°C	%		97.0	97.0
Heat Output max at 30% Heat Input average - return 47°C	%		102,70%	102,70%
Efficiency at 30% Heat Input average - return 30°C	%		107,80%	107,80%
Efficiency Heat Output min. - 60/80°C	%		95,80%	95,80%
Efficiency at 100% Heat Input - 30/50°C	%		106,50%	106,50%
Efficiency Heat Output min - 30/50°C	%		107,30%	107,30%
Combustion data				
Maximum combustion efficiency	%		97,60%	97,60%
Minimum combustion efficiency	%		98,20%	98,20%
Flue efficiency losses with burner on (Heat Input max.)	%		2,40	2,40
Flue efficiency losses with burner on (Heat Input min.)	%		1,80	1,80
Flue efficiency losses with burner off	%		0.02	0.02
Casing efficiency losses (Heat Input max.)	%		1,10	1,10
Casing efficiency losses (Heat Input min.)	%		2,40	2,40
Casing efficiency losses with burner off	%		0.03	0.03
Fumes temperature - Heat Input max.	°C		74,20	74,20
Fumes temperature - Heat Input min.	°C		58,70	58,70
Fumes mass - Heat Input max.	g/s		319.44	372.68
Fumes mass - Heat Input min.	g/s		2.70	2,70
CO2 Heat Input max. - G20	%		9.4-9.2	9,20 - 9,00
CO2 Heat Input min. - G20	%		9.1-8.9	8,90 - 8,70
CO2 Heat Input max. - G30	%		11.4 - 11.2	11,40 - 11,20
CO2 Heat Input min. - G30	%		10.8 - 10.6	10,80 - 10,60
CO2 Heat Input max. - G31	%		10.3 - 10.1	10,20 - 10,00
CO2 Heat Input min. - G31	%		9.8- 9.6	9,90 - 9,70
CO Heat Input max	ppm		91	91
CO Heat Input max.	ppm		1	1
Weighted CO (0% O2)	ppm		12	12
NOx	class		6	6
Weighted NOx (0% O2)	mg/kWh		32	32
Heating circuit				
Temperature setting - Central heating	°C		30-80/25-45	30-80 / 25-45
Max. operating temperature - Central heating	°C		80	80
Max. operating pressure - Central heating	bar		3	3

HEAT INPUT [kW]			708	826
Min. operating pressure - Central heating	bar		0.3	0.3
Primary circuit water content	litres		348	
Dimensions				
Width	mm		2736	3650
Depth	mm		1059	1059
Height	mm		1880	1880
Gross weight	kg		846	
Hydraulic Connections				
C.H. Flow	DN - PN		100 - 6	100 - 6
Gas	Ø		1"1/2	1"1/2
C.H. Return	DN - PN		100 - 6	100 - 6
Condensate drain	Ø		29	29
Flue systems				
Fan - Max. available pressure	Pa		100	100
Fan - Min. available pressure	Pa		21.5	21.5
Electrical specifications				
Voltage-frequency	V/Hz		220-230/50	220-230/50
Max Power consumption	W		1304	
Max Power consumption - boiler pump (100%)	W		660	
Electric power with boiler OFF	W		14	14
Protection rating	IP		X4D	X4D
Gas supply				
Supply pressure - G20	mbar		20	20
Supply pressure max. - G20	mbar		25	25
Supply pressure min. - G20	mbar		15	15
Fan speed Max. HEATING output - G20	Hz		250 [1]	250
Fan speed Min. HEATING output - G20	Hz		55 [1]	55
Gas consumption - G20	m^3/h		74.91	87.40
Supply pressure - G30	mbar		28-30	28-30
Supply pressure max. - G30	mbar		35	35
Supply pressure min. - G30	mbar		20	20
Fan speed Max. HEATING output - G30	Hz		228 [1]	228
Fan speed Min. HEATING output - G30	Hz		55 [1]	55
Gas consumption - G30	kg/h		55.83	65.14
Supply pressure - G31	mbar		37	37
Supply pressure max. - G31	mbar		45	45
Supply pressure min. - G31	mbar		25	25
Fan speed Max. HEATING output - G31	Hz		248 [1]	248
Fan speed Min. HEATING output - G31	Hz		55 [1]	55
Gas consumption - G31	kg/h		54.99	64.16

Note:

[1] Individual thermal units; [2] Master unit complete with controller;

HEAT INPUT [kW]			**885**	**944**
COMPOSITION			**n°1xR1KG 180 [2] + n°1xR1KG 240 [2] + n°2xR1KG 240 A**	**n°2xR1KG 240 [2] + n°2xR1KG 240 A**
Gas category	category		$II_{2H3B/P}$	$II_{2H3B/P}$
Flue type	type		B23-B23p	B23-B23p
Energy efficientcy 92/42/CEE	n° stars		4	4
Heat Input max (C.H.)	kW		885	944
Heat Input min (C.H.)	kW		6	6
Heat Output max. - 60/80°C	kW		865.54	923.24
Heat Output min. - 60/80°C	kW		5,75	5,75
Heat Output max. - 30/50°C	kW		942.53	1005.36
Heat Output min. - 30/50°C	kW		6.44	6,44
Heat Output max at 30% Heat Input average - return 30°C	kW		146.98	156.52
Efficiency at 100% Heat Input - 60/80°C	%		97,8	97,8
Efficiency at 30% Heat Input - return 30°C	%		108,3	108,3
Heat Input average efficiency - 60/80°C	%		97.0	97.0
Heat Output max at 30% Heat Input average - return 47°C	%		102,70%	102,70%
Efficiency at 30% Heat Input average - return 30°C	%		107,80%	107,80%
Efficiency Heat Output min. - 60/80°C	%		95,80%	95,80%
Efficiency at 100% Heat Input - 30/50°C	%		106,50%	106,50%
Efficiency Heat Output min - 30/50°C	%		107,30%	107,30%
Combustion data				
Maximum combustion efficiency	%		97,60%	97,60%
Minimum combustion efficiency	%		98,20%	98,20%
Flue efficiency losses with burner on (Heat Input max.)	%		2,40	2,40
Flue efficiency losses with burner on (Heat Input min.)	%		1,80	1,80
Flue efficiency losses with burner off	%		0.02	0.02
Casing efficiency losses (Heat Input max.)	%		1,10	1,10
Casing efficiency losses (Heat Input min.)	%		2,40	2,40
Casing efficiency losses with burner off	%		0.03	0.03
Fumes temperature - Heat Input max.	°C		74,20	74,20
Fumes temperature - Heat Input min.	°C		58,70	58,70
Fumes mass - Heat Input max.	g/s		399.30	425.92
Fumes mass - Heat Input min.	g/s		2.70	2,70
CO2 Heat Input max. - G20	%		9.4-9.2	9,20 - 9,00
CO2 Heat Input min. - G20	%		9.1-8.9	8,90 - 8,70
CO2 Heat Input max. - G30	%		11.4 - 11.2	11,40 - 11,20
CO2 Heat Input min. - G30	%		10.8 - 10.6	10,80 - 10,60
CO2 Heat Input max. - G31	%		10.3 - 10.1	10,20 - 10,00
CO2 Heat Input min. - G31	%		9.8- 9.6	9,90 - 9,70
CO Heat Input max	ppm		91	91
CO Heat Input max.	ppm		1	1
Weighted CO (0% O2)	ppm		12	12
NOx	class		6	6
Weighted NOx (0% O2)	mg/kWh		32	32
Heating circuit				
Temperature setting - Central heating	°C		30-80/25-45	30-80 / 25-45
Max. operating temperature - Central heating	°C		80	80
Max. operating pressure - Central heating	bar		3	3

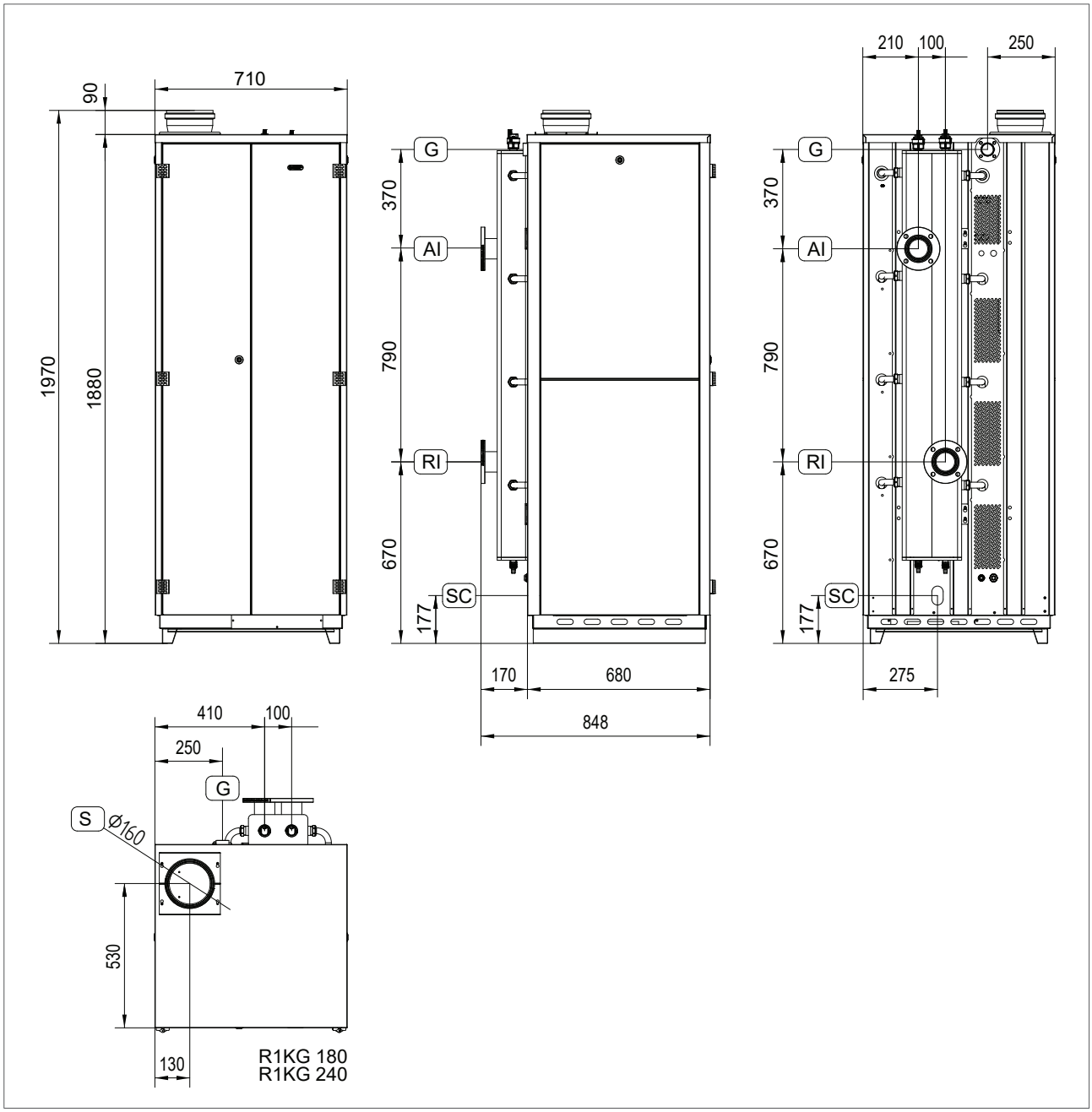
HEAT INPUT [kW]			885	944
Min. operating pressure - Central heating	bar		0.3	0.3
Primary circuit water content	litres		362	376
Dimensions				
Width	mm		3650	3650
Depth	mm		1059	1059
Height	mm		1880	1880
Gross weight	kg		875	904
Hydraulic Connections				
C.H. Flow	DN - PN		100 - 6	100 - 6
Gas	Ø		1"1/2	1"1/2
C.H. Return	DN - PN		100 - 6	100 - 6
Condensate drain	Ø		29	29
Flue systems				
Fan - Max. available pressure	Pa		100	100
Fan - Min. available pressure	Pa		21.5	21.5
Electrical specifications				
Voltage-frequency	V/Hz		220-230/50	220-230/50
Max Power consumption	W		1628	1736
Max Power consumption - boiler pump (100%)	W		825	880
Electric power with boiler OFF	W		14	14
Protection rating	IP		X4D	X4D
Gas supply				
Supply pressure - G20	mbar		20	20
Supply pressure max. - G20	mbar		25	25
Supply pressure min. - G20	mbar		15	15
Fan speed Max. HEATING output - G20	Hz		250 [1]	250
Fan speed Min. HEATING output - G20	Hz		55 [1]	55
Gas consumption - G20	m^3/h		93.64	99.88
Supply pressure - G30	mbar		28-30	28-30
Supply pressure max. - G30	mbar		35	35
Supply pressure min. - G30	mbar		20	20
Fan speed Max. HEATING output - G30	Hz		228 [1]	228
Fan speed Min. HEATING output - G30	Hz		55 [1]	55
Gas consumption - G30	kg/h		69.79	74.44
Supply pressure - G31	mbar		37	37
Supply pressure max. - G31	mbar		45	45
Supply pressure min. - G31	mbar		25	25
Fan speed Max. HEATING output - G31	Hz		248 [1]	248
Fan speed Min. HEATING output - G31	Hz		55 [1]	55
Gas consumption - G31	kg/h		68.74	73.32

Note:

[1] Individual thermal units; [2] Master unit complete with controller;

4. DIMENSIONS

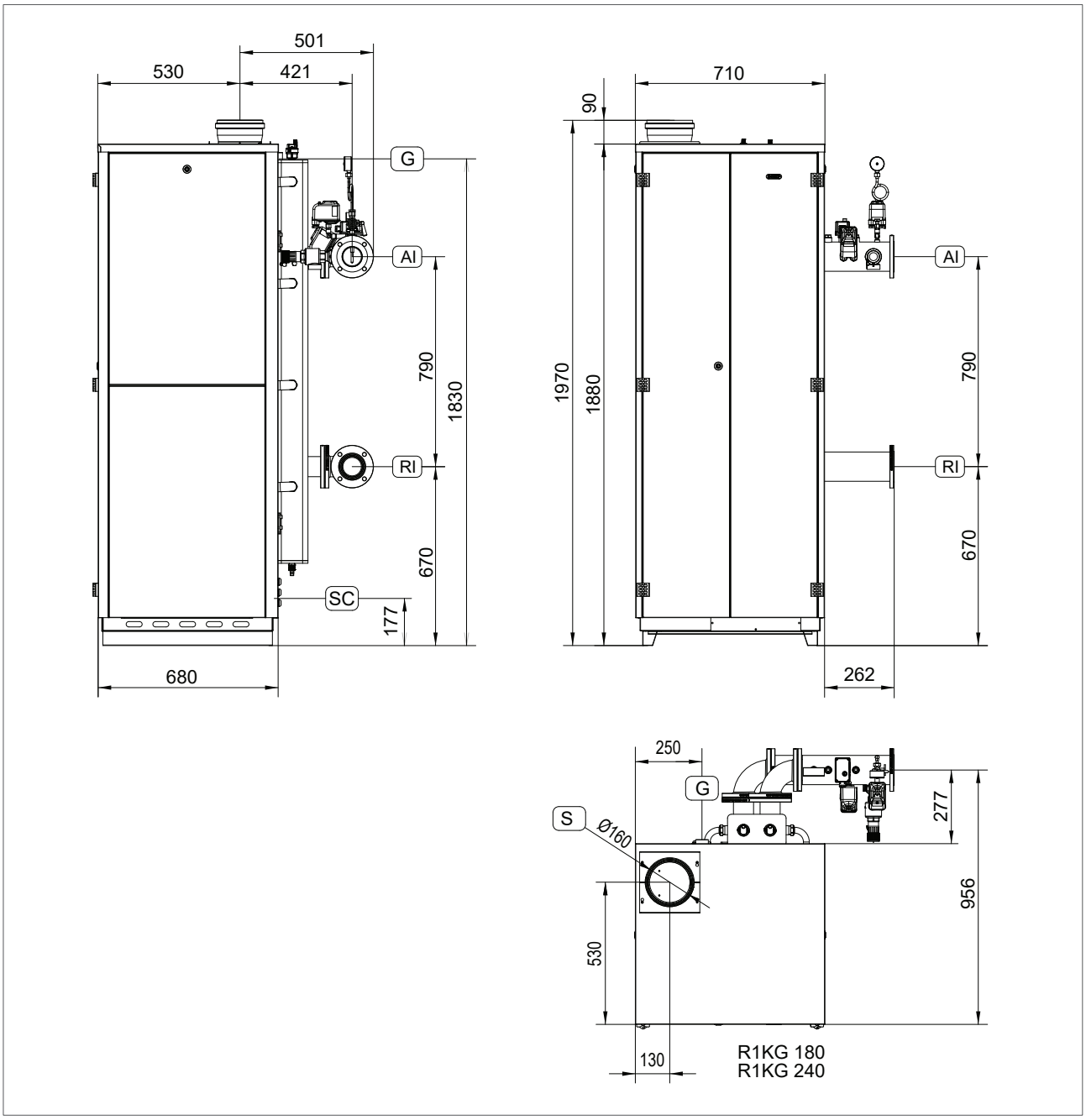
SINGLE INSTALLATION



KEY

AI	HEATING FLOW	DN65 -PN6
RI	HEATING RETURN	DN65 -PN6
G	GAS	Ø1"1/2
S	FLUE VENTING	Ø160
SC	CONDENSATE DRAIN	Ø29

SINGLE INSTALLATION WITH ACCESSORIES AND MANIFOLD WITH OPTIONAL APPROVED SAFETY GROUP

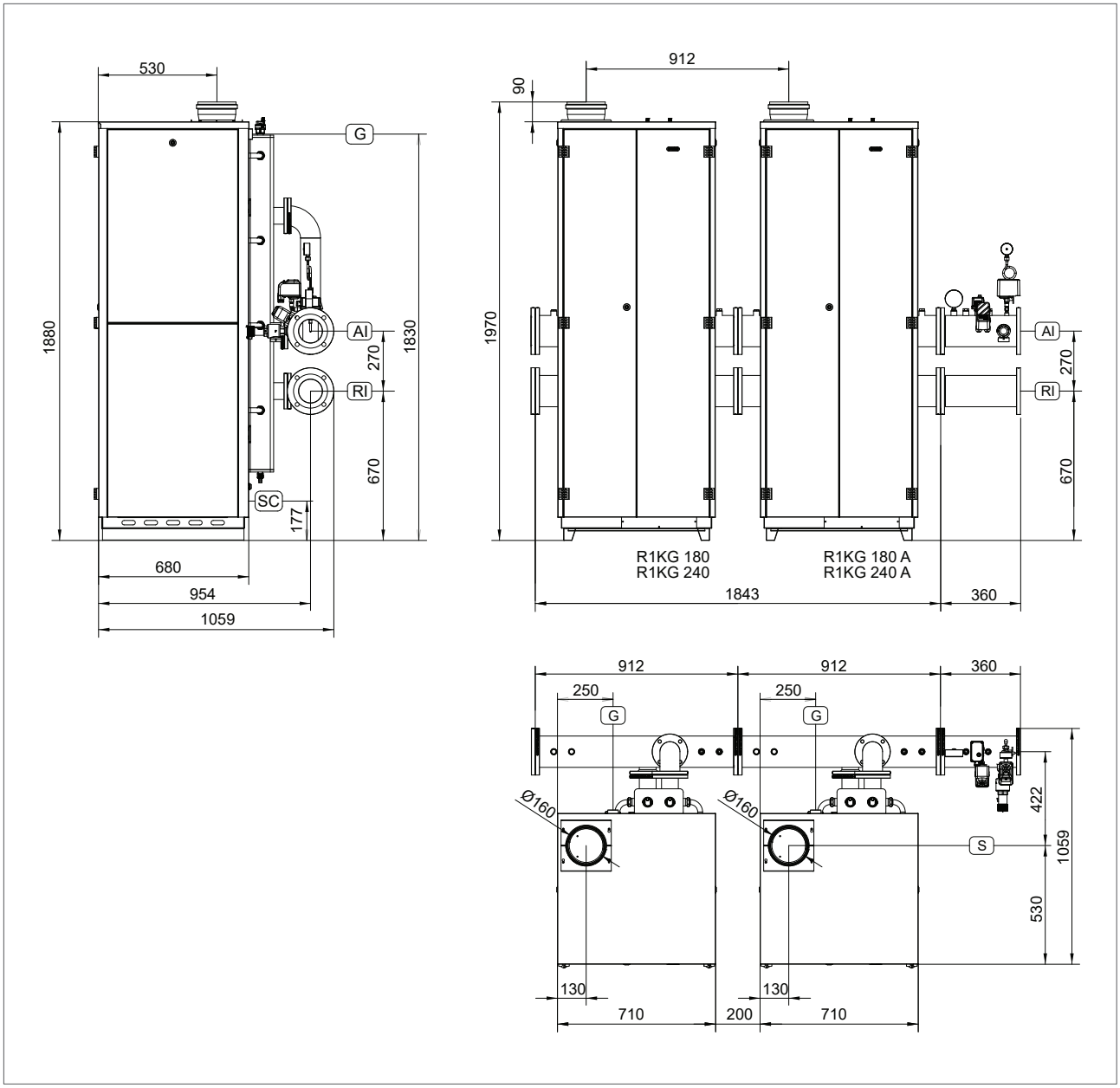


KEY

AI	HEATING FLOW	DN65 -PN6
RI	HEATING RETURN	DN65 -PN6
G	GAS	Ø1"1/2
S	FLUE OUTLET	Ø160
SC	CONDENSATE DRAIN CONNECTION	Ø29

PLEASE NOTE: The installation of the manifold complete with safety group is not mandatory for the boiler proper operations: it protects the boiler from possible systems overpressure and/or overheating.

NO. 2 x R1KG UNITS IN CASCADE INSTALLATION WITH MANIFOLD WITH OPTIONAL APPROVED SAFETY GROUP

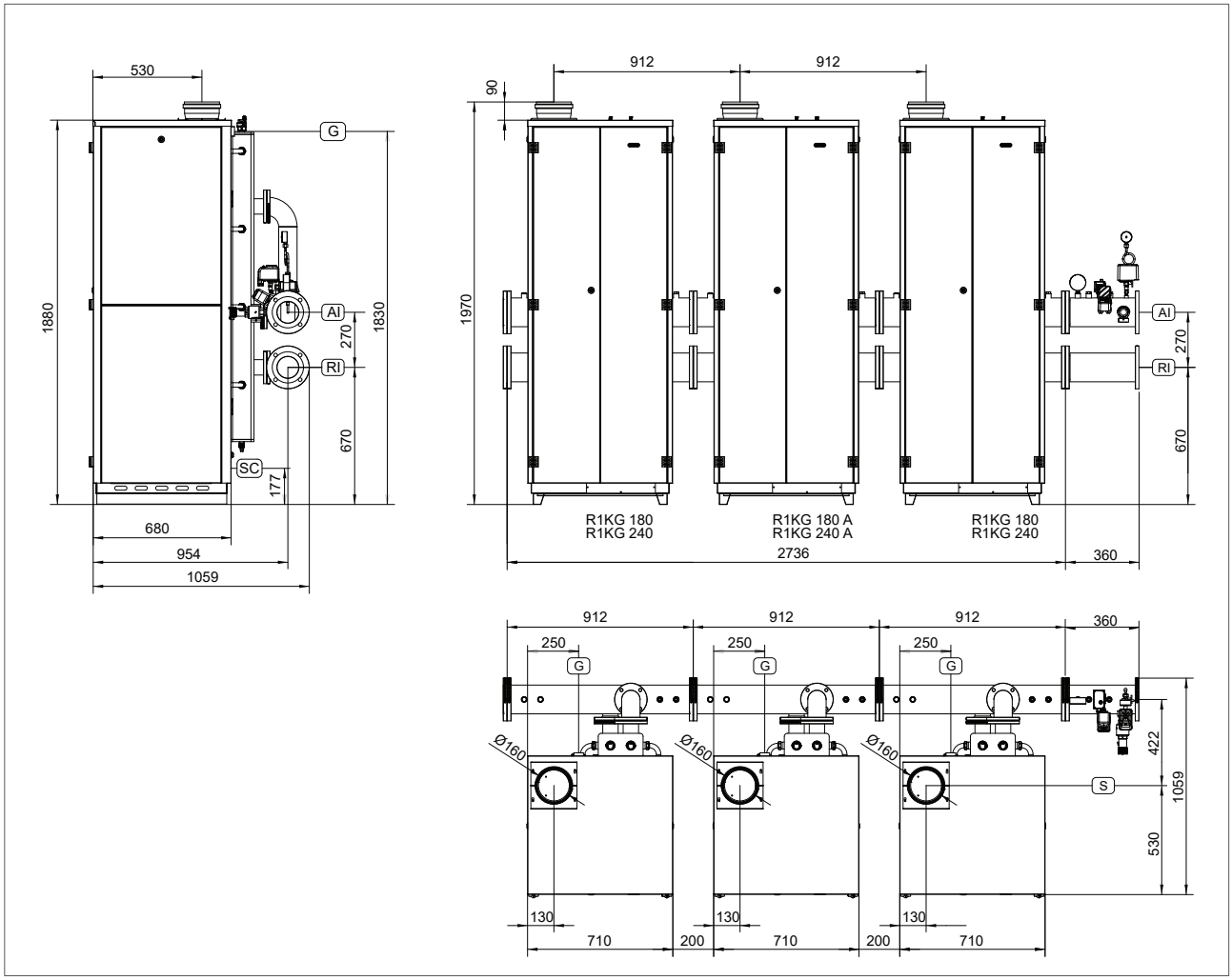


KEY

AI	HEATING FLOW	DN100 -PN6
RI	HEATING RETURN	DN100 -PN6
G	GAS	Ø1"1/2
S	FLUE VENTING	Ø160
SC	CONDENSATE DRAIN	Ø29

PLEASE NOTE: The installation of the manifold complete with safety group is not mandatory for the boiler proper operations: it protects the boiler from possible systems overpressure and/or overheating.

NO. 3 x R1KG UNITS IN CASCADE INSTALLATION WITH MANIFOLD WITH OPTIONAL APPROVED SAFETY GROUP

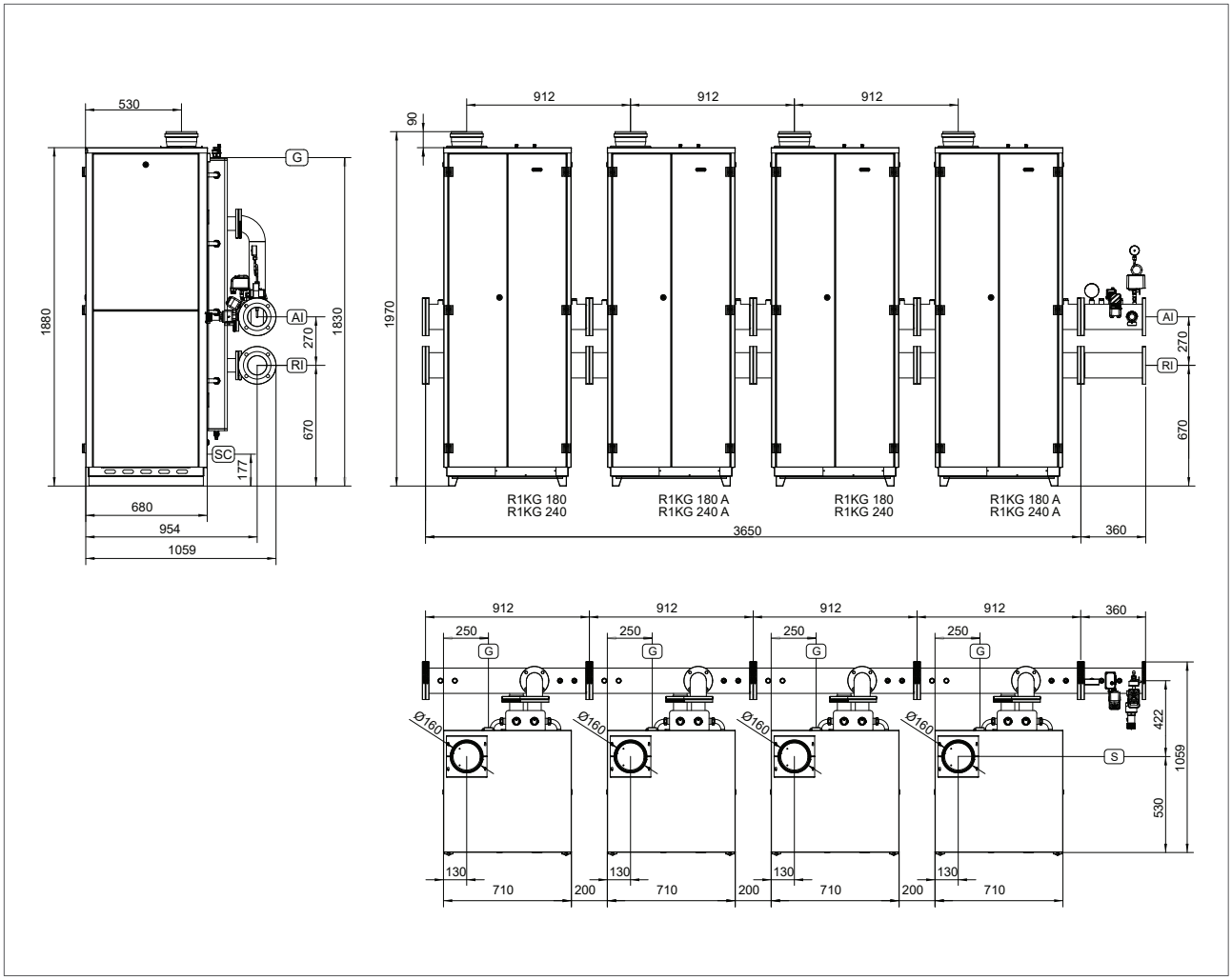


KEY

AI	HEATING FLOW	DN100 -PN6
RI	HEATING RETURN	DN100 -PN6
G	GAS	Ø1"1/2
S	FLUE OUTLET	Ø160
SC	CONDENSATE DRAIN CONNECTION	Ø29

PLEASE NOTE: The installation of the manifold complete with safety group is not mandatory for the boiler proper operations: it protects the boiler from possible systems overpressure and/or overheating.

NO. 4 x R1KG UNITS IN CASCADE INSTALLATION WITH MANIFOLD WITH OPTIONAL APPROVED SAFETY GROUP

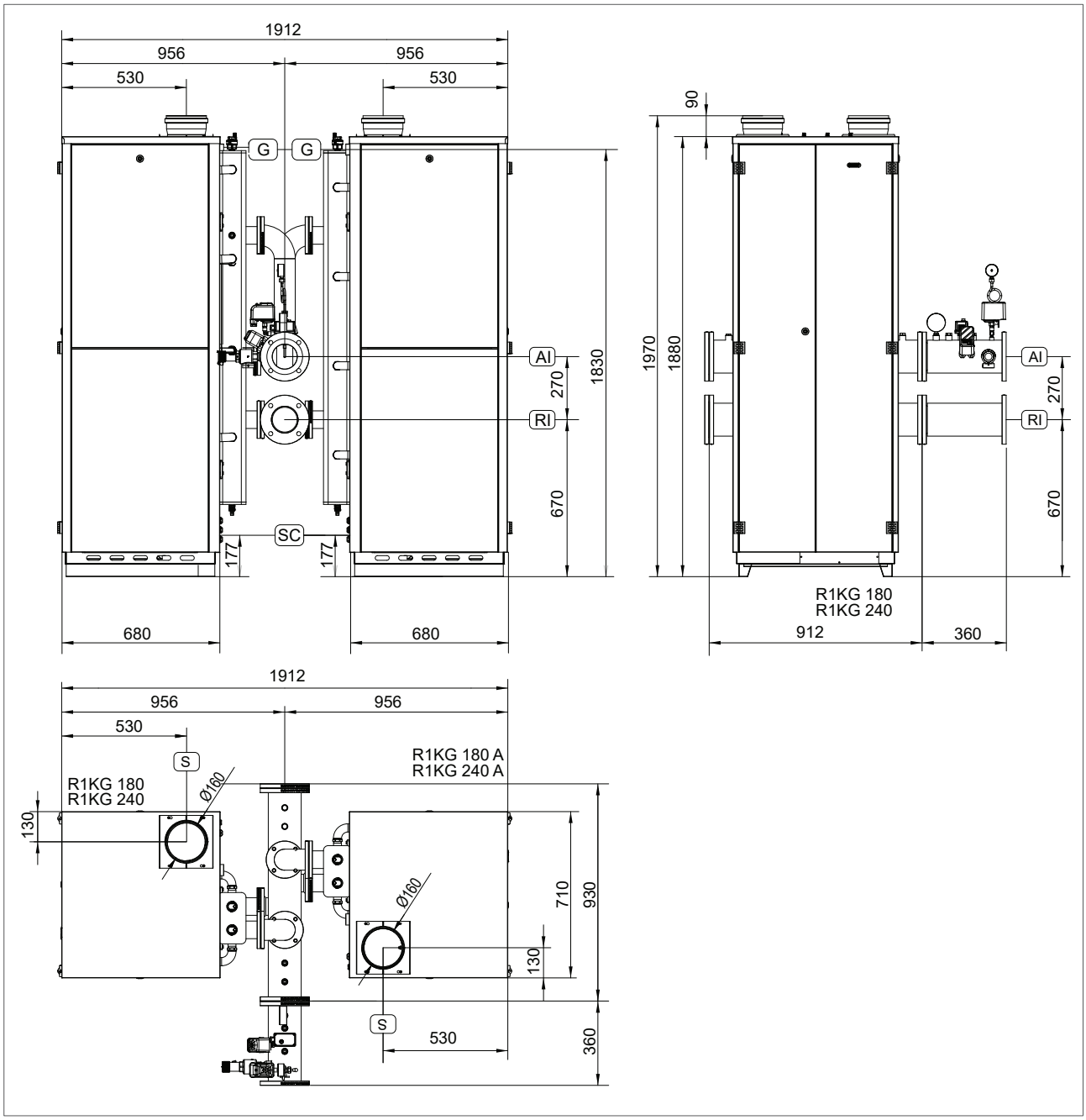


KEY

AI	HEATING FLOW	DN100 -PN6
RI	HEATING RETURN	DN100 -PN6
G	GAS	Ø1"1/2
S	FLUE OUTLET	Ø160
SC	CONDENSATE DRAIN CONNECTION	Ø29

PLEASE NOTE: The installation of the manifold complete with safety group is not mandatory for the boiler proper operations: it protects the boiler from possible systems overpressure and/or overheating.

NO. 2 x R1KG BACK-TO-BACK CASCADE INSTALLATION WITH MANIFOLD WITH OPTIONAL APPROVED SAFETY GROUP

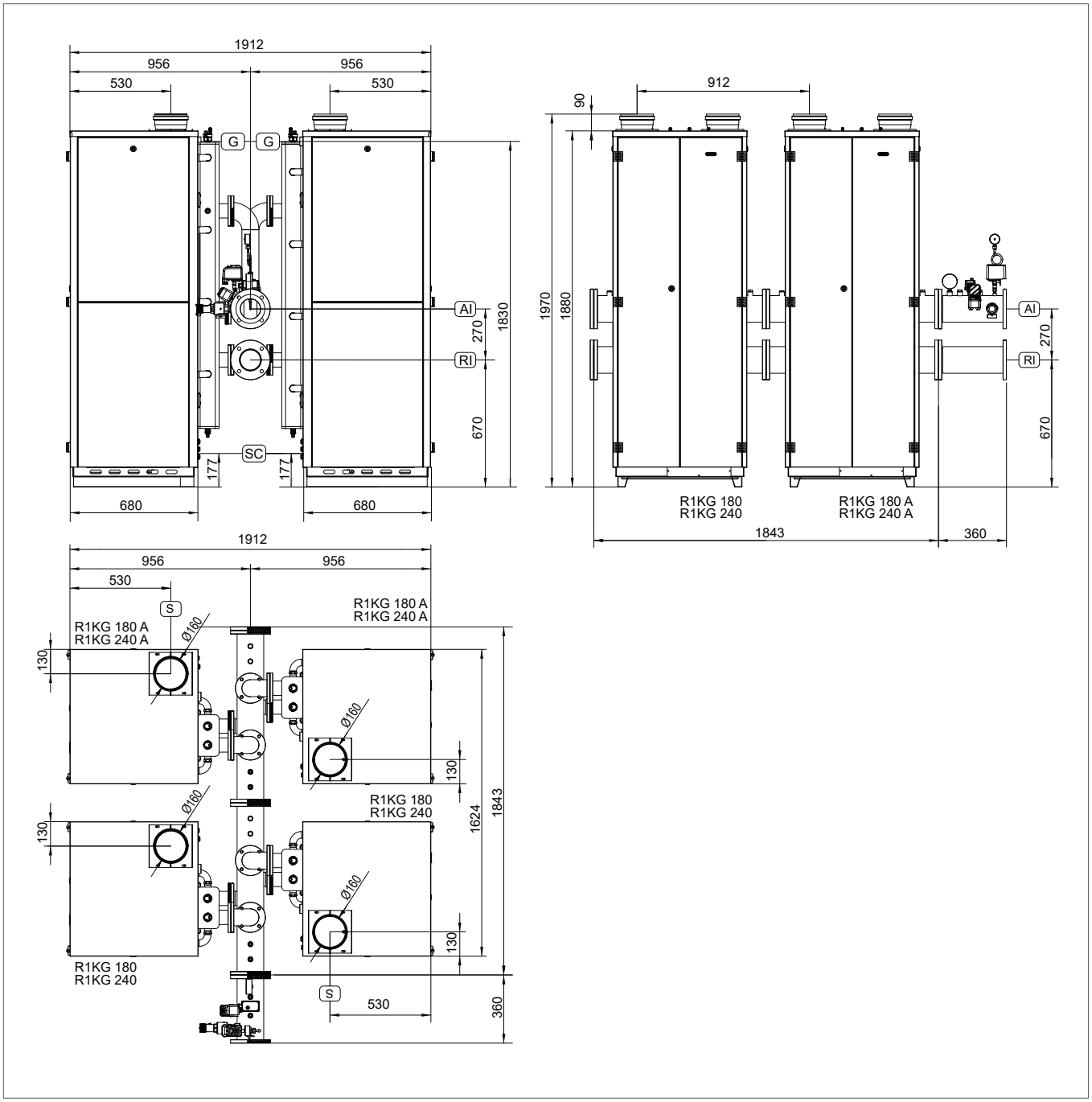


KEY

AI	HEATING FLOW	DN100 -PN6
RI	HEATING RETURN	DN100 -PN6
G	GAS	Ø1"1/2
S	FLUE VENTING	Ø160
SC	CONDENSATE DRAIN	Ø29

PLEASE NOTE: The installation of the manifold complete with safety group is not mandatory for the boiler proper operations: it protects the boiler from possible systems overpressure and/or overheating.

NO. 4 x R1KG IN BACK-TO-BACK CASCADE INSTALLATION WITH MANIFOLD WITH OPTIONAL APPROVED SAFETY GROUP



KEY

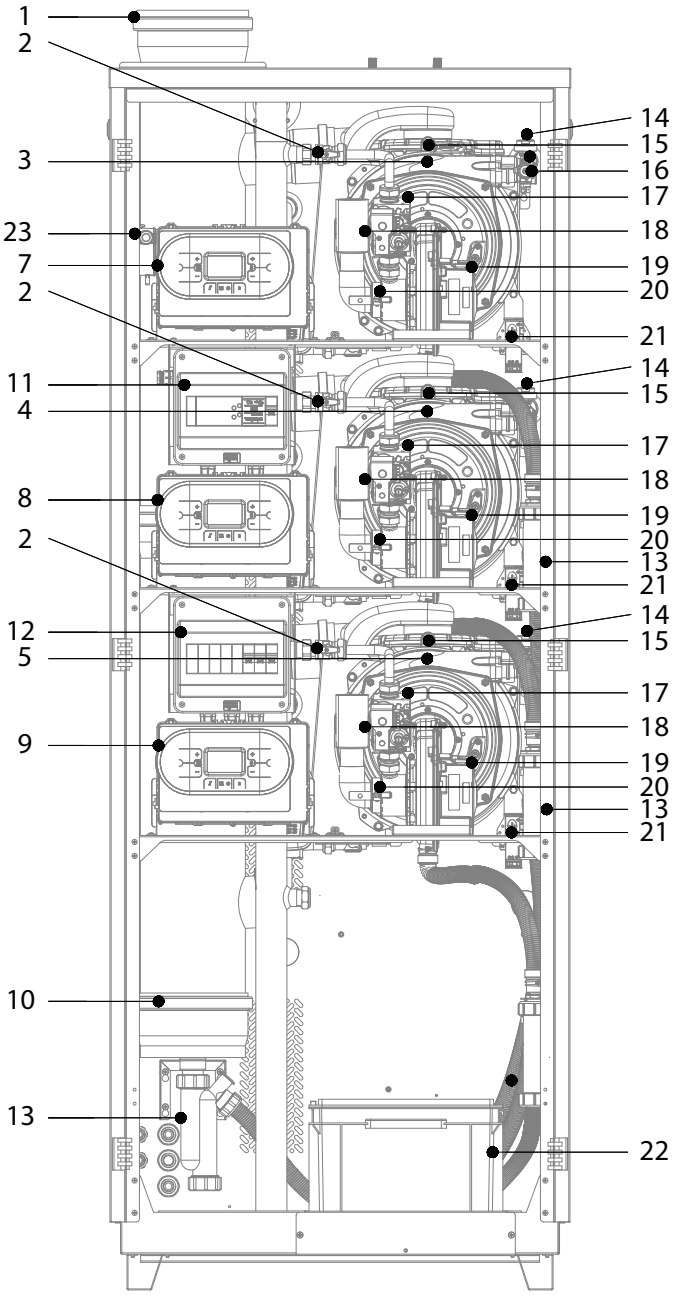
AI	HEATING FLOW	DN100 -PN6
RI	HEATING RETURN	DN100 -PN6
G	GAS	Ø1"1/2
S	FLUE OUTLET	Ø160
SC	CONDENSATE DRAIN CONNECTION	Ø29

PLEASE NOTE: The installation of the manifold complete with safety group is not mandatory for the boiler proper operations: it protects the boiler from possible systems overpressure and/or overheating.

5. TECHNICAL ASSEMBLY

R1KG 180 model

Master unit complete with controller



KEY

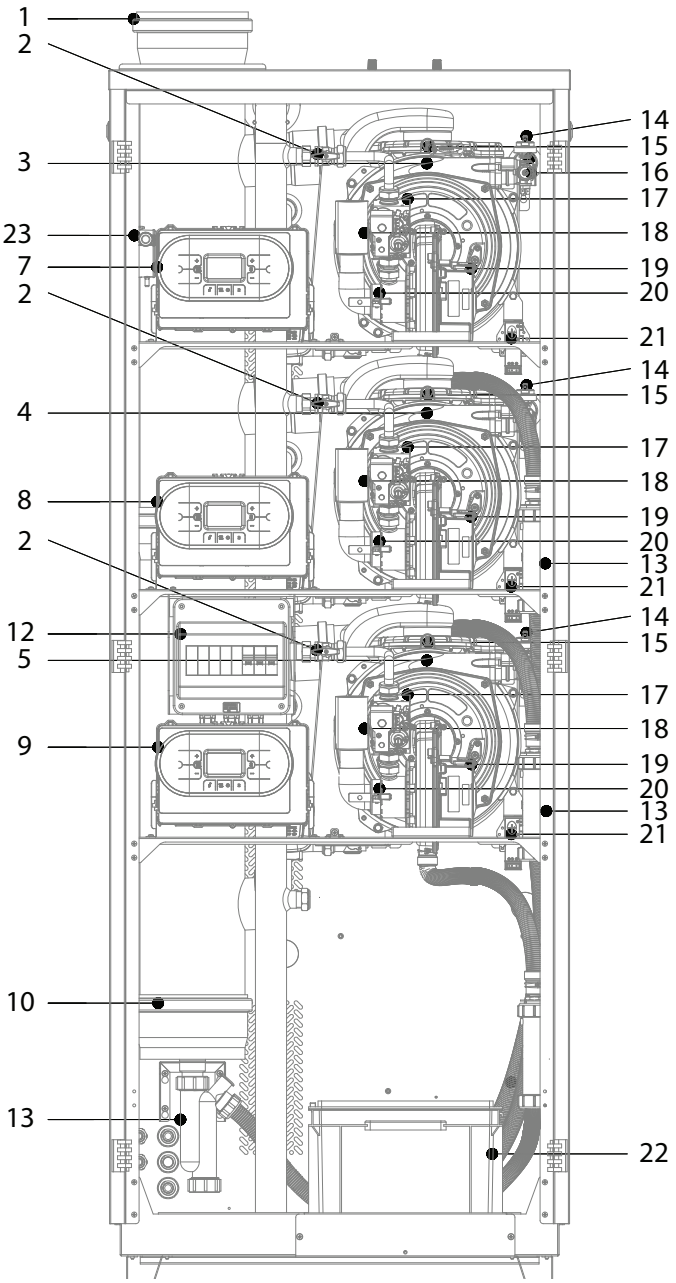
1. Ø 160 FLUE EXHAUST CONNECTION
2. GAS TAP
3. CONDENSING HEAT EXCHANGER 1
4. CONDENSING HEAT EXCHANGER 2
5. CONDENSING HEAT EXCHANGER 3
6. -
7. CONTROL PANEL 1
8. CONTROL PANEL 2
9. CONTROL PANEL 3
10. -
11. MODBUS CASCADE CONTROLLER
12. SWITCHBOARD
13. CONDENSATE DRAIN SIPHON
14. WATER PRESSURE SWITCH
15. FLUE SAFETY THERMOFUSE
16. MANUAL AIR VENT VALVE
17. GAS VALVE
18. AIR INTAKE TUBE
19. FAN
20. VENTURI
21. IGNITION TRANSFORMER
22. CONDENSATE NEUTRALISER
23. AIR PRESSURE SWITCH

R1KG 180 A model

Slave unit

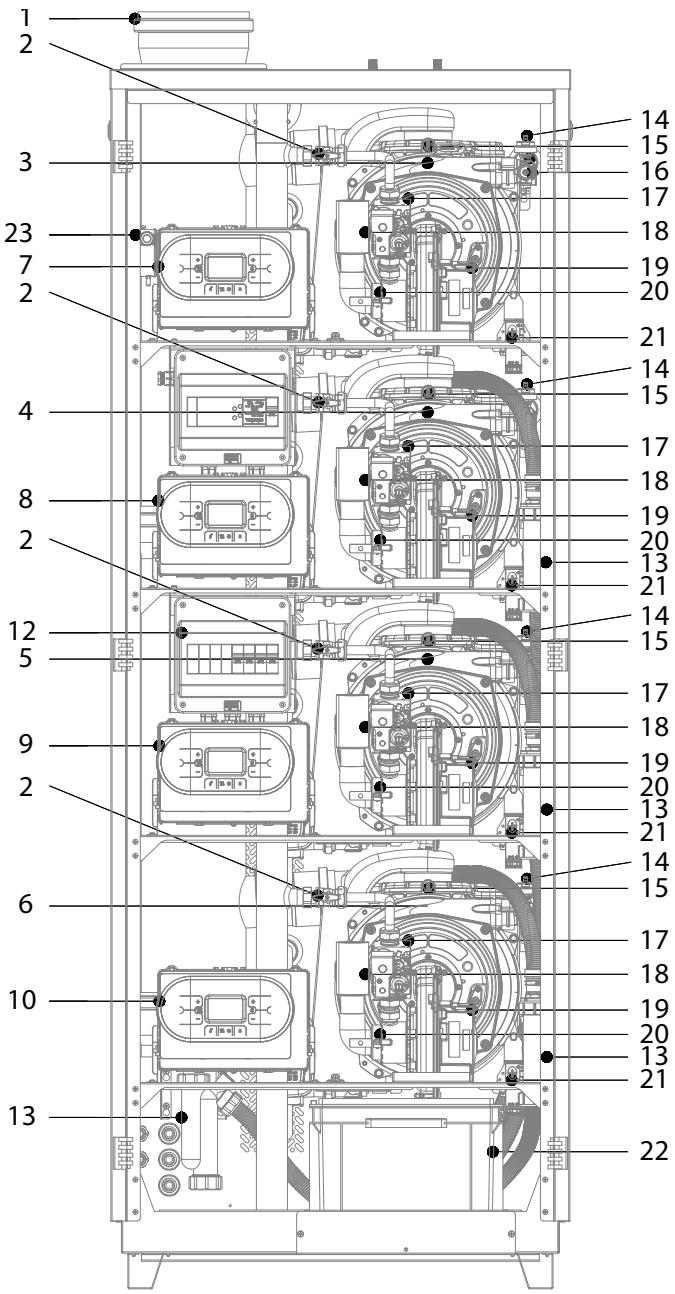
KEY

1. Ø 160 FLUE EXHAUST CONNECTION
2. GAS TAP
3. CONDENSING HEAT EXCHANGER 1
4. CONDENSING HEAT EXCHANGER 2
5. CONDENSING HEAT EXCHANGER 3
6. -
7. CONTROL PANEL 1
8. CONTROL PANEL 2
9. CONTROL PANEL 3
10. -
11. -
12. SWITCHBOARD
13. CONDENSATE DRAIN SIPHON
14. WATER PRESSURE SWITCH
15. FLUE SAFETY THERMOFUSE
16. MANUAL AIR VENT VALVE
17. GAS VALVE
18. AIR INTAKE TUBE
19. FAN
20. VENTURI
21. IGNITION TRANSFORMER
22. CONDENSATE NEUTRALISER
23. AIR PRESSURE SWITCH



R1KG 240 model

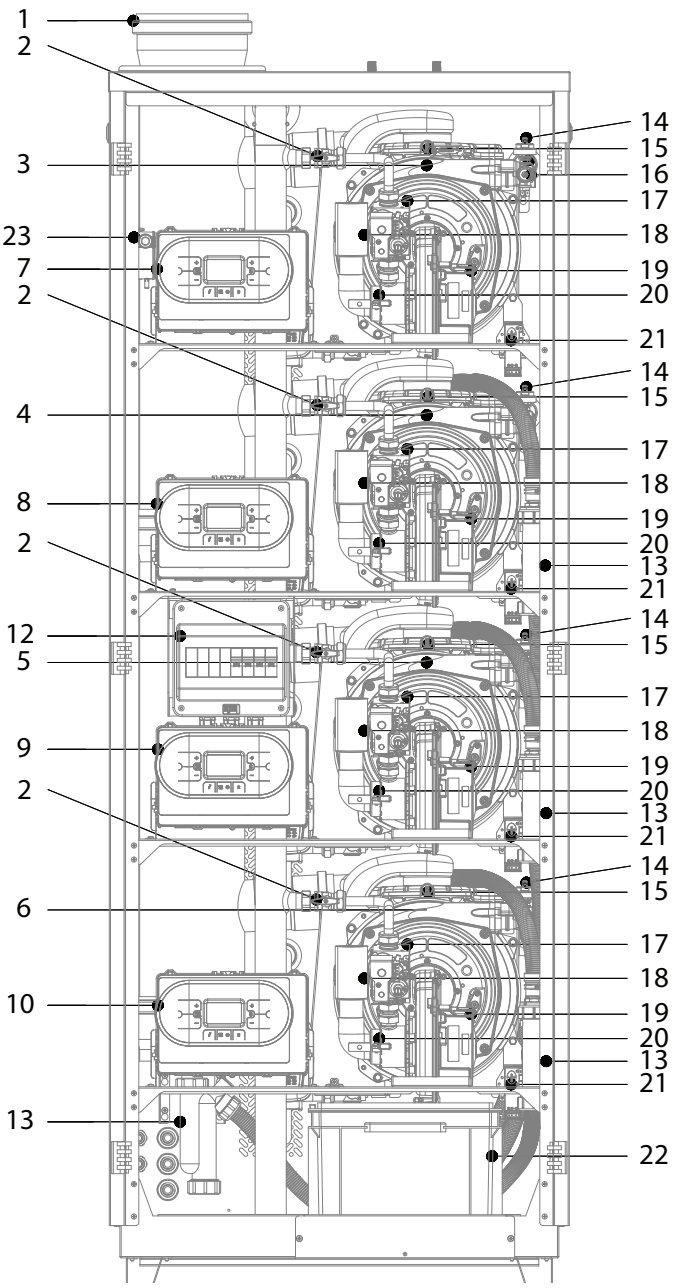
Master unit complete with controller



KEY

1. Ø 160 FLUE EXHAUST CONNECTION
2. GAS TAP
3. CONDENSING HEAT EXCHANGER 1
4. CONDENSING HEAT EXCHANGER 2
5. CONDENSING HEAT EXCHANGER 3
6. CONDENSING HEAT EXCHANGER 4
7. CONTROL PANEL 1
8. CONTROL PANEL 2
9. CONTROL PANEL 3
10. CONTROL PANEL 4
11. MODBUS CASCADE CONTROLLER
12. SWITCHBOARD
13. CONDENSATE DRAIN SIPHON
14. WATER PRESSURE SWITCH
15. FLUE SAFETY THERMOFUSE
16. MANUAL AIR VENT VALVE
17. GAS VALVE
18. AIR INTAKE TUBE
19. FAN
20. VENTURI
21. IGNITION TRANSFORMER
22. CONDENSATE NEUTRALISER
23. AIR PRESSURE SWITCH

R1KG 240 A model
Slave unit



KEY

1. Ø 160 FLUE EXHAUST CONNECTION
2. GAS TAP
3. CONDENSING HEAT EXCHANGER 1
4. CONDENSING HEAT EXCHANGER 2
5. CONDENSING HEAT EXCHANGER 3
6. CONDENSING HEAT EXCHANGER 4
7. CONTROL PANEL 1
8. CONTROL PANEL 2
9. CONTROL PANEL 3
10. CONTROL PANEL 4
11. -
12. SWITCHBOARD
13. CONDENSATE DRAIN SIPHON
14. WATER PRESSURE SWITCH
15. FLUE SAFETY THERMOFUSE
16. MANUAL AIR VENT VALVE
17. GAS VALVE
18. AIR INTAKE TUBE
19. FAN
20. VENTURI
21. IGNITION TRANSFORMER
22. CONDENSATE NEUTRALISER
23. AIR PRESSURE SWITCH

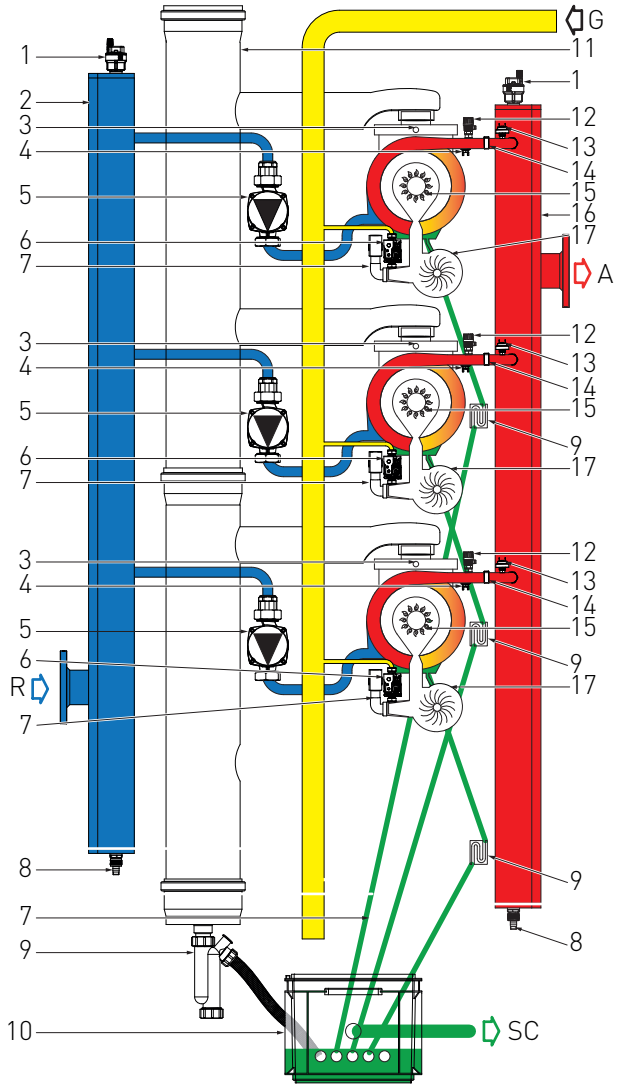
6. WATER CIRCUIT

R1KG 180 model

KEY

R. HEATING RETURN
G. GAS
A. HEATING FLOW
SC. CONDENSATE DRAIN

1. AUTOMATIC AIR VENT VALVE
2. HEATING RETURN MANIFOLD
3. FLUE SAFETY THERMOFUSE
4. SAFETY THERMOSTAT
5. CIRCULATING PUMP
6. GAS VALVE
7. AIR INTAKE TUBE
8. SYSTEM DRAINING TAP
9. CONDENSATE DRAIN SIPHON
10. CONDENSATE NEUTRALISER
11. Ø 160 FLUE EXHAUST CONNECTION
12. MANUAL AIR VENT VALVE
13. WATER PRESSURE SWITCH
14. HEATING SENSOR
15. BURNER UNIT
16. HEATING FLOW MANIFOLD
17. FAN

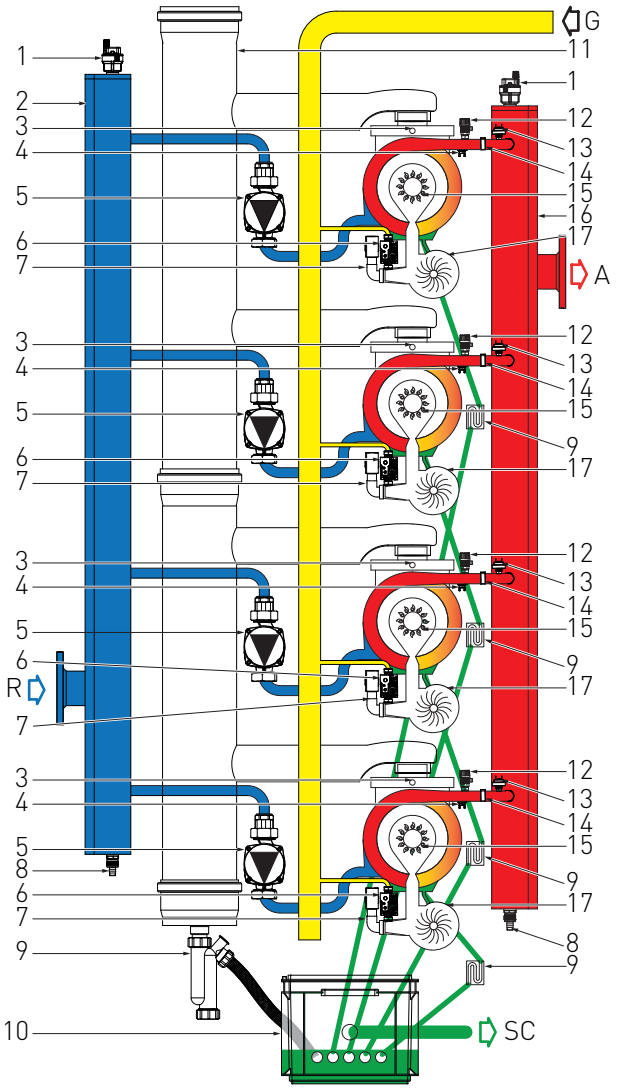


R1KG 240 model

KEY

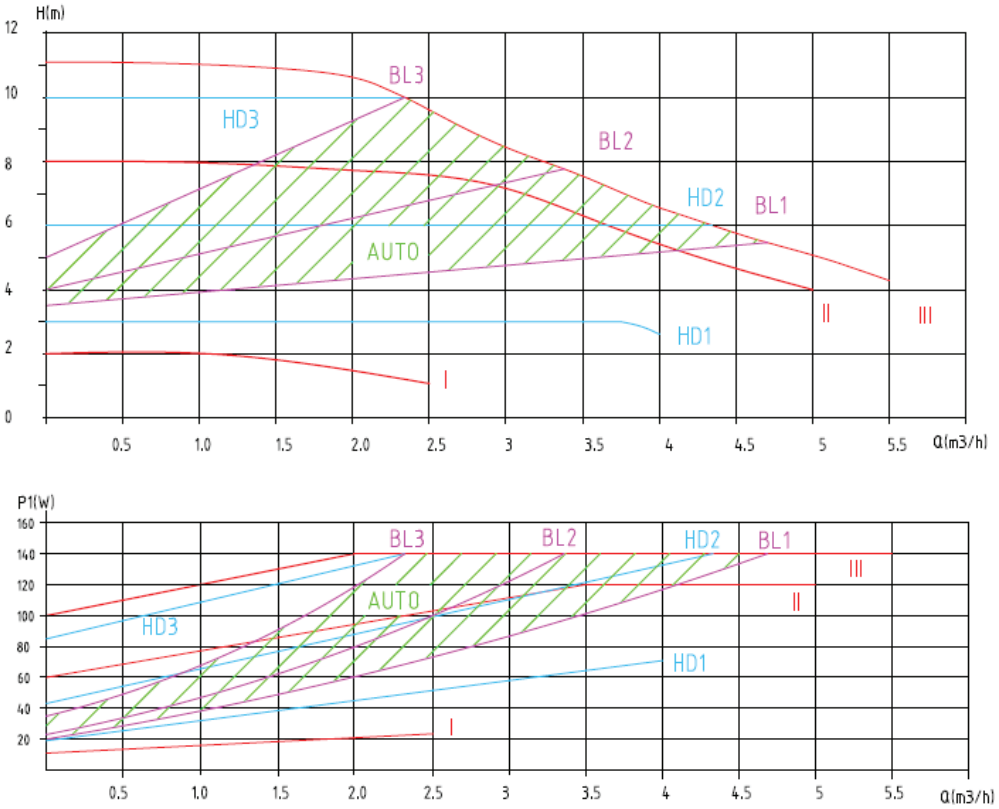
R. HEATING RETURN
G. GAS
A. HEATING FLOW
SC. CONDENSATE DRAIN

1. AUTOMATIC AIR VENT VALVE
2. HEATING RETURN MANIFOLD
3. FLUE SAFETY THERMOFUSE
4. SAFETY THERMOSTAT
5. CIRCULATING PUMP
6. GAS VALVE
7. AIR INTAKE TUBE
8. SYSTEM DRAINING TAP
9. CONDENSATE DRAIN SIPHON
10. CONDENSATE NEUTRALISER
11. Ø 160 FLUE EXHAUST CONNECTION
12. MANUAL AIR VENT VALVE
13. WATER PRESSURE SWITCH
14. HEATING SENSOR
15. BURNER UNIT
16. HEATING FLOW MANIFOLD
17. FAN

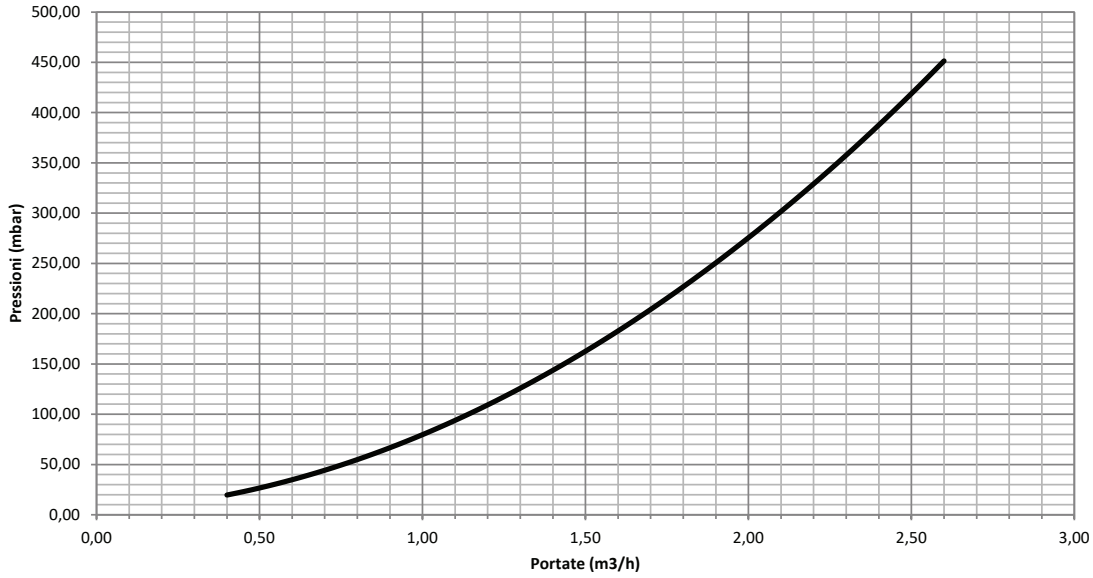


7. HEAD/FLOW DIAGRAM

PUMP - These curves include the hydraulic losses as per the attached graph [1]

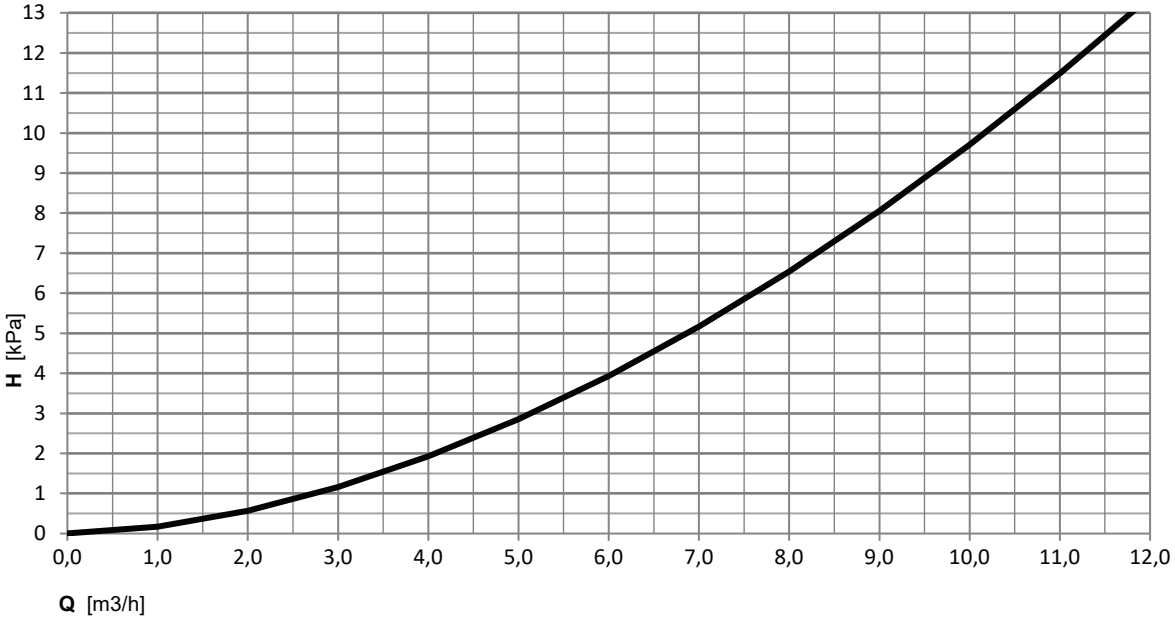


HYDRAULIC PRESSURE LOSSES [1]



NOTE:[1] These information are related to one single heat exchanger of the boiler, up to the boiler flow/return connection.

HYDRAULIC PRESSURE LOSSES - ACCESSORIES [2]



NOTE:[2] These information are related to one single accessory code 65-01128 - 65-01139.