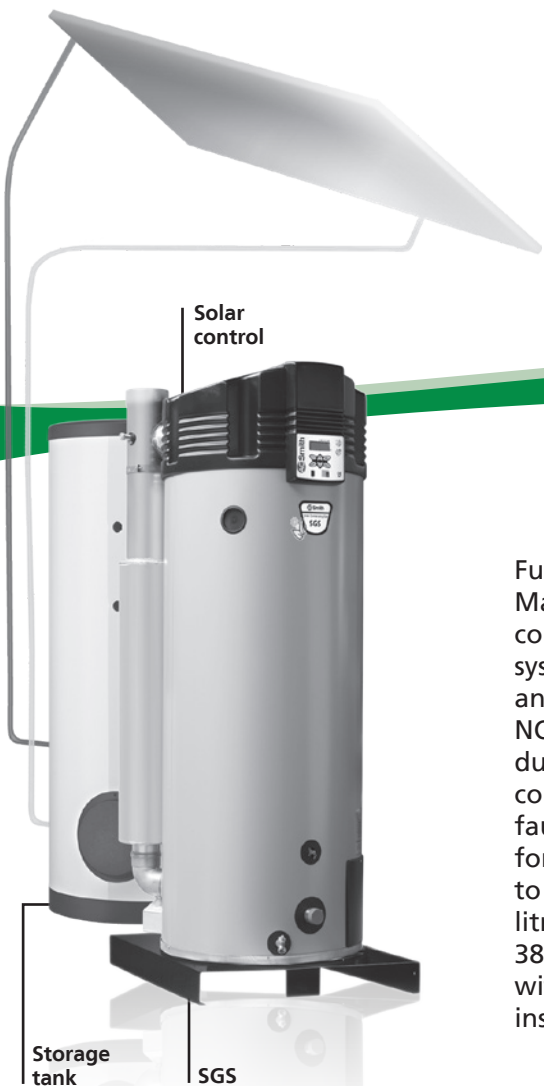




# SGS

## Condensing High Efficiency Gas-Solar Water Heater

SGS - 28/30/50/60/80/100/120



Fully room-sealed condensing high efficiency gas-solar water heater • Maximum solar contribution through fully integrated intelligent solar controller, heat comfort guaranteed • Automatic gas/air premix burning system including burner modulation • Delivered with low-maintenance inert anodes • Efficiency **97%** (gross) • NOx emission  $\leq 30$  ppm (dry – air free) – NOx class 5 • Whisper quiet operation ( $<45$  dB(A) at 2m distance from roof duct) • One control and display unit for the complete installation • Extra solar contribution possible up to **40%** compared to standard solar systems • Easy fault diagnosis and computer controlled digital week timer • Programmable for legionella purge cycle • Voltage-free contact for general fault indication to BMS • Suitable in combination with ITE indirect water heaters up to 1024 litres • For larger applications A.O. Smith developed the IT storage tanks from 385 up to 2800 litres • Varying water temperature setting from 40°C to 80°C with use of week timer • Delivered on steel base for convenient transport and installation

## Features and options

- Fully room-sealed condensing high efficiency gas-solar water heater
- Maximum solar contribution through fully integrated intelligent solar controller, heat comfort guaranteed
- Automatic gas/air premix burning system including burner modulation
- Delivered with low-maintenance inert anodes
- Efficiency **97%** (gross)
- NOx emission  $\leq 30$  ppm (dry – air free) – NOx class 5
- Whisper quiet operation (<45 dB(A) at 2m distance from roof duct)
- One control and display unit for the complete installation
- Extra solar contribution possible up to **40%** compared to standard solar systems
- Easy fault diagnosis and computer controlled digital week timer
- Programmable for legionella purge cycle
- Voltage-free contact for general fault indication to BMS
- Suitable in combination with ITE indirect water heaters up to 1024 litres
- For larger applications A.O. Smith developed the IT storage tanks from 400 up to 3000 litres
- Varying water temperature setting from 40°C to 80°C with use of week timer
- Delivered on steel base for convenient transport and installation
- Solar collectors available with ingenious drain-back system to prevent stagnation temperatures from arising in the installation
- SGS is compatible with solar collectors or as a stand-alone water heater
- Dummy sensor kit:  
an optional dummy sensor kit available for the SGS to operate without a solar circuit; for use in a staged development where DHW may be required ahead of fitting a solar circuit.

## Energy labeling

		SGS 28	SGS 30	SGS 50	SGS 60	SGS 80	SGS 100	SGS 120
Load Profil	-	XXL	XXL	XXL	XXL	3XL	3XL	3XL
Energy labeling	-	A	A	A	A	-	-	-
Efficiency	%	91	91	91	90	93	93	92
Annual Electricity Consumption (AEC)	kWh	46	46	47	47	52	54	57
Daily Electricity Consumption	kWh	0.251	0.254	0.255	0.256	0.281	0.290	0.301
Annual Fuel Consumption (AEC)	GJ GCV	21	21	21	21	39	39	39
Daily Fuel Consumption	kWh GCV	26.501	26.552	26.562	26.632	49.811	49.922	50.060
Nitrogen Dioxide Emission (NO2)	mg/kWh GCV	24	32	36	37	34	36	37
Mixed Water of 40°C (according V40)	ltr.	1255	∞	∞	∞	1368	∞	∞
Sound Power Level	dB	46	47	55	59	54	59	62
Other Load Profil	-	-	-	3XL	3XL	-	-	-
Efficiency	%	-	-	89	89	-	-	-
Annual Electricity Consumption (AEC)	kWh	-	-	55	56	-	-	-
Daily Electricity Consumption	kWh	-	-	0.295	0.296	-	-	-
Annual Fuel Consumption (AEC)	GJ GCV	-	-	41	41	-	-	-
Daily Fuel Consumption	kWh GCV	-	-	52.051	52.162	-	-	-
Nitrogen Dioxide Emission (NO2)	mg/kWh GCV	-	-	36	37	-	-	-
Mixed Water of 40°C (according V40)	ltr.	-	-	559	601	-	-	-

# Technical specifications

		SGS 28	SGS 30	SGS 50	SGS 60	SGS 80	SGS 100	SGS 120
<b>Gas data natural gas 2H (G20)</b>								
Input*	kW	32.2	33.3	52.2	63.3	86.6	105.5	128.8
Output	kW	31.0	32.7	50.3	60.4	84.2	100.7	121.8
Inlet pressure	mbar	20	20	20	20	20	20	20
Gas consumption **	m <sup>3</sup> /h	3.1	3.2	5.0	6.0	8.3	10.1	12.3
Flue gas discharge	°C	45	50	60	65	50	55	60
<b>Gas data propane 3P (G31)</b>								
Input*	kW	31.5	32.6	51.1	62.0	84.8	103.3	126.1
Output	kW	31.0	32.7	50.3	60.4	84.2	100.7	121.8
Inlet pressure	mbar	37/50	37/50	37/50	37/50	37/50	37/50	37/50
Gas consumption **	kg/h	2.3	2.3	3.7	4.4	6.1	7.4	9.0
Flue gas discharge	°C	45	50	60	65	50	55	60
<b>General</b>								
Nox	ppm	≤ 30	≤ 30	≤ 30	≤ 30	≤ 30	≤ 30	≤ 30
Noise level	dB(A)	< 45	< 45	< 45	< 45	< 45	< 45	< 45
Efficiency (gross)	%	96	98	96	95	97	95	95
Weight empty	kg	202	239	239	239	480	480	480
Maximum weight	kg	419	607	607	607	960	960	960
Storage capacity	l	217	368	368	368	480	480	480
Max. temperature setting	°C	80	80	80	80	80	80	80
Maximum working pressure	kPa (bar)	800 (8)						
<b>Draw-off capacity ***</b>								
<b>T<sub>set</sub> = 65°C / T<sub>cold</sub> = 10°C</b>								
30 min. ΔT 44°C	l	370	440	630	730	940	1100	1300
60 min. ΔT 44°C	l	670	760	1200	1400	1800	2100	2500
90 min. ΔT 44°C	l	980	1100	1700	2000	2600	3100	3700
120 min. ΔT 44°C	l	1300	1400	2100	2500	3500	4100	4900
Continuous ΔT 44°C	l/h	610	640	990	1200	1700	2000	2400
Heating-up time ΔT=44°C	min	21	35	22	19	17	15	12
30 min. ΔT 50°C	l	310	350	520	610	780	910	1100
60 min. ΔT 50°C	l	570	640	950	1200	1600	1800	2200
90 min. ΔT 50°C	l	840	920	1400	1700	2300	2700	3200
120 min. ΔT 50°C	l	1200	1200	1900	2200	3000	3600	4300
Continuous ΔT 50°C	l/h	540	570	870	1100	1500	1800	2100
Heating-up time ΔT 50°C	min.	24	39	26	21	20	17	14
30 min ΔT=55°C	l	260	290	440	530	670	790	950
60 min ΔT=55°C	l	500	550	840	1000	1400	1600	1900
90 min ΔT=55°C	l	750	800	1300	1500	2000	2400	2900
120 min ΔT=55°C	l	990	1100	1700	2000	2700	3200	3800
Continuous ΔT 55°C	l/h	490	520	790	950	1400	1600	2000
Heating-up time ΔT 55°C	min.	27	43	28	23	22	18	15
<b>Electrical data</b>								
Power consumption	W	45	45	75	115	95	145	240
Power supply	VAC/Hz	230 (-15% +10% VAC)/50 (±1Hz)						
<b>Shipping data</b>								
Weight incl. packaging	kg	222	259	259	259	491	491	491
Width packaging	mm	870	870	870	870	920	920	920
Height packaging	mm	1550	2055	2055	2055	2060	2060	2060
Depth packaging	mm	950	950	950	950	1020	1020	1020

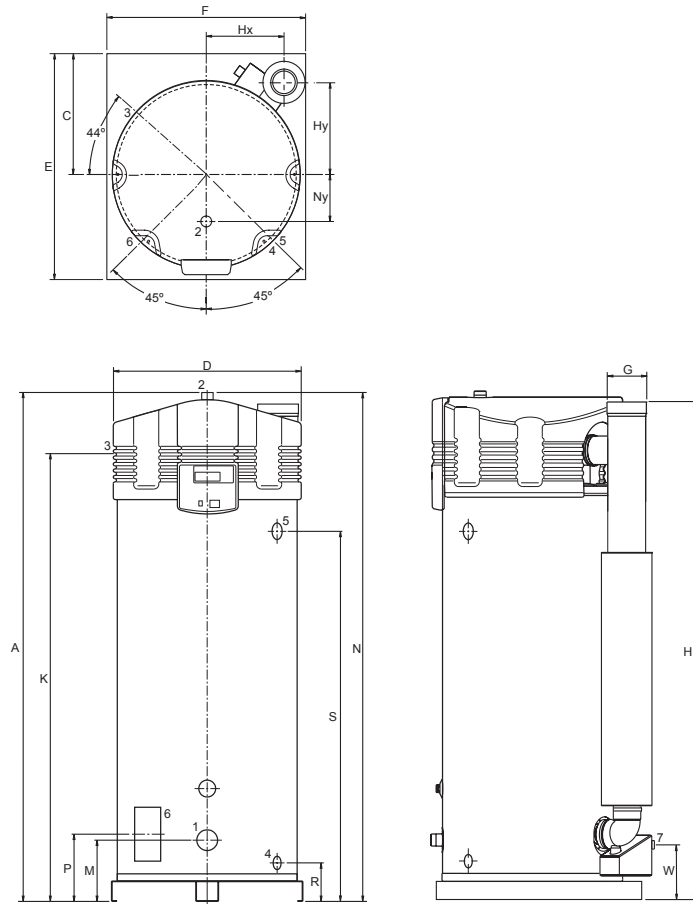
\* Gas data on gross value

\*\* Gas consumption at 15°C en 1013,25 mbar

\*\*\* Based on nat gas

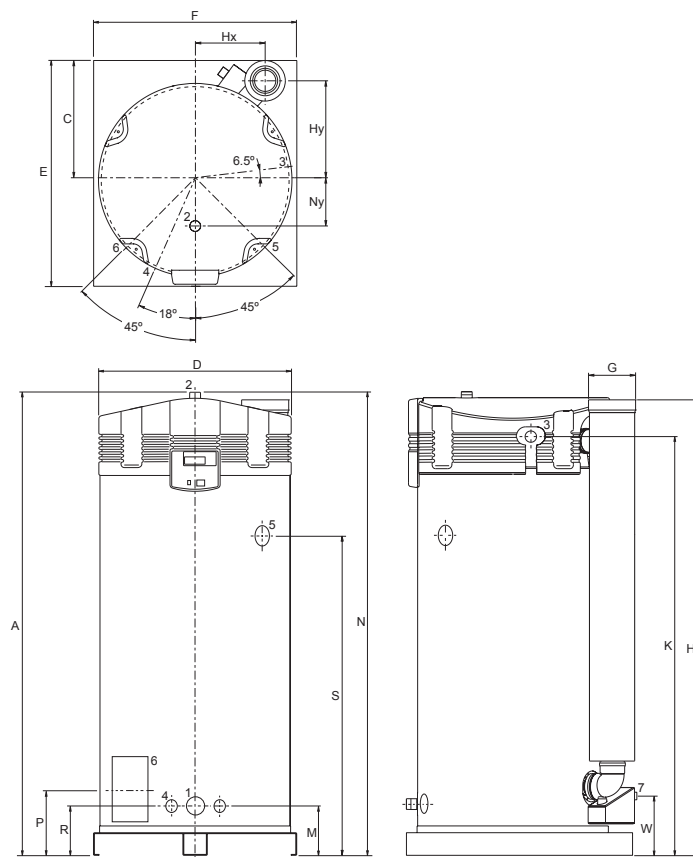
# Dimensions

SGS 28-60



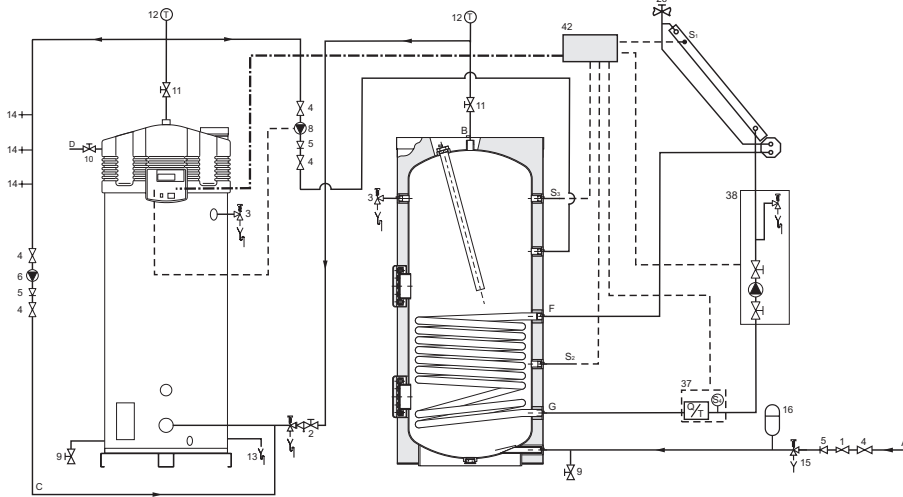
	SGS 28	SGS 30	SGS 50	SGS 60	SGS 80	SGS 100	SGS 120
A	1485	2015	2015	2015	2060	2060	2060
C	490	490	490	490	530	530	530
D	705	705	705	705	850	850	850
E	925	925	925	925	1000	1000	1000
F	850	850	850	850	900	900	900
G	100/150	100/150	100/150	100/150	130/200	130/200	130/200
H	1285	1980	1980	1980	1995	1995	1995
Hx	265	265	265	265	310	310	310
Hy	375	375	375	375	440	440	440
K	1380	1910	1910	1910	1855	1855	1855
M	265	255	255	255	225	225	225
N	1485	2015	2015	2015	2060	2060	2060
Ny	205	205	205	205	205	205	205
P	265	270	270	270	290	290	290
R	180	170	170	170	225	225	225
S	995	1505	1505	1505	1425	1425	1425
W	245	240	240	240	240	240	240
1	Cold water connection				R1 <sup>1</sup> / <sub>2</sub>		
2	Hot water connection				R1 <sup>1</sup> / <sub>2</sub>		
3	Gas valve connection				R <sup>3</sup> / <sub>4</sub>		
4	Drain valve connection				1" (28-60) 3/4" (80-120)		
5	Temperature and pressure valve				1" / 11.5 NPT		
6	Inspection flange				95x70		
7	Condensate drain				Rp1		
Dimensions in mm.							

SGS 80-120



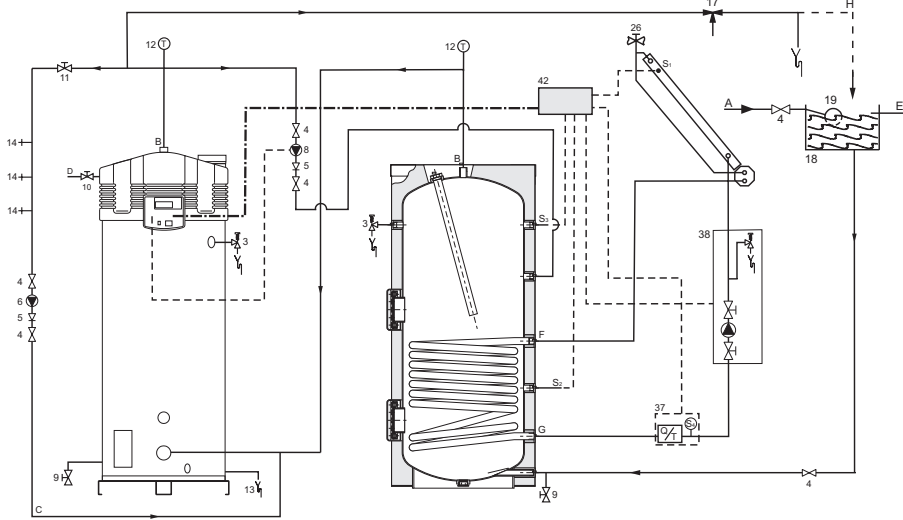
# Installation diagrams

UNVENTED



- 1 Pressure reduce valve
- 2 Inlet security group
- 3 T&P valve
- 4 Stop valve
- 5 Non-return valve
- 6 Circulation pump
- 8 Control pump
- 9 Drain valve
- 10 Gas valve
- 11 Service valve
- 12 Temperature meter
- 13 Condense drain
- 14 Hot water tap
- 15 Expansion valve
- 16 Expansion vessel
- 17 Three way valve
- 18 Water cistern
- 19 Float valve
- 23 Pressure valve
- 26 Air bleed
- 37 Flowmeter
- 38 Solar pump station
- 42 Junction box
- S1 T-collector
- S2 T-tank
- S3 T-top tank
- S4 T-return solar
- A Cold water supply
- B Hot water outlet
- C Circulation pipe
- D Gas supply
- E Water overflow
- F Coil inlet
- G Coil outlet
- H Expansion pipe

VENTED



A.O. Smith unvented system kits utilise combination valves.

In the instruction manual you will find all the necessary information regarding connection, installation and maintenance of the product; including information on the electrical connections.

Information regarding the recycling or disposal of the product can also be found in the manual. This manual is delivered with the appliance and can also be found on our website; [www.aosmith.co.uk](http://www.aosmith.co.uk).

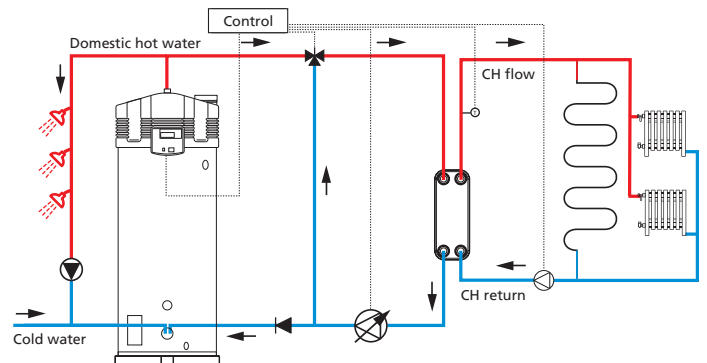
## Optional: Theta Dual Service

Theta dual service means using the available hot water from one of our water heaters for both domestic hot water (DHW) and heating. Dual service can be used in combination with a BFC Cyclone, SGE or SGS system. This is a perfect system for locations where a lot of domestic hot water and a little bit of heating is requested.

The intelligent control uses the available hot water very efficiently to meet the heating demand from one system without compromising comfort levels.

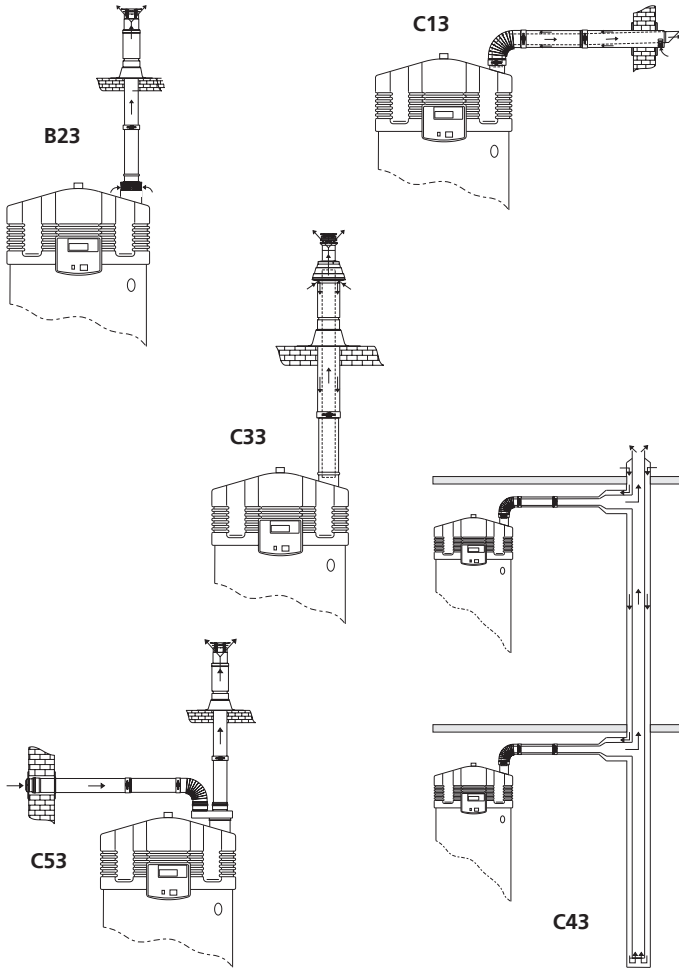
THETA MODULE FOR SGS		
Art. No.	kW CH capacity	$\Delta T$ CH system
T 20 06	20	06
T 20 10	20	10
T 20 20	20	20
T 30 06	30	06
T 30 10	30	10
T 30 20	30	20
T 40 06	40	06
T 40 10	40	10
T 40 20	40	20

- Plate heat exchanger – single separation (a double separated plate heat exchanger can be delivered upon request)
- Primary DHW pump
- Temperature sensor with cable incl. clip
- Three-way mixing valve including cables
- Instruction manual



Further information is available on our website: [www.aosmith.co.uk](http://www.aosmith.co.uk)

# Installation options

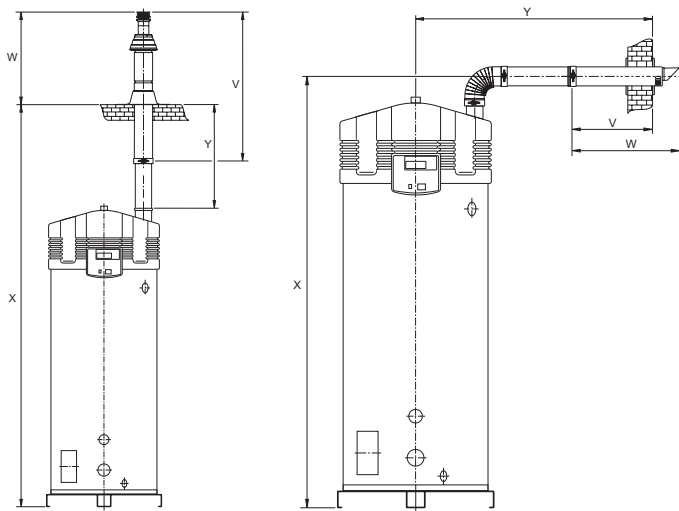


Further information on the flue gas discharge materials can be found in the Installation manual.

A SGS water heater should be installed according category B23, C13, C33, C43 or C53\*.

	SGS 28	SGS 30	SGS 50	SGS 60	SGS 80	SGS 100	SGS 120
<b>Concentric</b>							
Diameter (mm)	100/150	100/150	100/150	100/150	130/200	130/200	130/200
Max. length (m)	40	40	40	40	15	15	15
Max. 45/90° bends	7	7	7	7	4	4	4
<b>Parallel (standard diameter)</b>							
Diameter (mm)	100	100	100	100	130	130	130
Max. length (m)	55	55	55	55	65	65	65
Equivalent/bend 90° (m)	4.6	4.6	4.6	4.6	2.4	2.4	2.4
Equivalent/bend 45° (m)	1.2	1.2	1.2	1.2	1.4	1.4	1.4
<b>Parallel (larger diameter for more length)</b>							
Diameter (mm)	130	130	130	130	150	150	150
Max. length (m)	100	100	100	100	100	100	100
Equivalent/bend 90° (m)	2.4	2.4	2.4	2.4	2.6	2.6	2.6
Equivalent/bend 45° (m)	1.4	1.4	1.4	1.4	1.6	1.6	1.6
* All SGS appliances are also approved for installations where the unit is supplied without venting materials (C63).							
<b>Concentric flues</b>							
It is <b>not</b> permitted to use more than the specified number of bends, even when the duct is shorter than the maximum length. A 45° bend is equivalent to a 90° bend.							
<b>Parallel flues</b>							
- The maximum permissible length should be reduced by the equivalent length of each bend. (Note: for a parallel installation this means that 3 changes in direction amount to 6 bends (3 in the supply duct and 3 in the flue).							
- The maximum length also applies if a parallel installation has different supply and flue duct lengths (B23, C53).							
- Combined flues (C43) shall be fitted with a condensate drain.							
Note: horizontal flue runs must be installed with a fall of at least 5 cm per metre.							

# Minimum space requirements



	SGS 28 Ø100/150	SGS 30 Ø100/150	SGS 50 Ø100/150	SGS 60 Ø100/150	SGS 80 Ø130/200	SGS 100 Ø130/200	SGS 120 Ø130/200
<b>Minimal space for wall duct (mm)</b>							
V	550	550	550	550	640	640	640
W	790	790	790	790	940	940	940
X	1630	2170	2170	2170	2230	2230	2230
X*	2080	2620	2620	2620	2680	2680	2680
Y	1480	1480	1480	1480	1620	1620	1620
Y*	1030	1030	1030	1030	1170	1170	1170
<b>Minimal space for roof duct (mm)</b>							
V	1500	1500	1500	1500	1730	1730	1730
W	1035	1035	1035	1035	1120	1120	1120
X	3060	3420	3420	3420	3620	3620	3620
X**	2110	2470	2470	2470	2670	2670	2670
Y	1415	1415	1415	1415	1560	1560	1560
Y**	465	465	465	465	610	610	610

\* Distance without concentric pipe between bend and wall duct.  
 \*\* Distance without concentric pipe between appliance and roof duct.

Data subject to change UK/0919/SGS/11  
 Terms and conditions apply, please refer to our website.