

# BFC Cyclone CONDENSING GLASS- LINED WATER HEATER

BFC 28/30/50/60/80/100/120



Range of high efficiency gas-fired water heaters with A label classification.

- Fully room-sealed condensing high-efficiency water heater 97%; hot water demand efficiency rating A: 90 to 93%
- Hot water carbon steel storage tank with A.O. Smith specifically developed glass lining for a long lasting corrosion protection; test pressure 12 bar, maximum allowed working pressure 8 bar.
- Tank supplied with factory installed brass nipples on hot and cold water connection
- 50 mm two component foam insulation, encased in steel bonderized jacket
- Automatic gas/air premix burning system including burner modulation
- Delivered with low-maintenance inert anodes
- NOx emission  $\leq 30$  ppm (dry – air free) – NOx class 5
- Whisper quiet operation (<45 dB(A) at 2m distance from duct)
- Immersed electronic accurate temperature sensor.
- Electronic controls allowing variable temperature setting with week program, anti legionella program, status, fault indication
- Control panel with display showing power on, actual temperatures, set temperatures and status
- Flexible flue options (maximum length 100m including long horizontal run) allow installations to be placed almost anywhere
- Flue gas temperature maximum 65°C
- Easy fault diagnosis and computer controlled digital week timer
- Programmable for legionella purge cycle
- Voltagefree contact for general fault indication to BMS
- BFC Cyclone 80-120 are delivered on steel base for convenient transport and installation
- Options:
  - BMS Modbus protocol interface
  - Dual service module combining water heating and space heating



Gas Appliances  
Regulation



**ROHS**

## SAMPLE SPECIFICATION

Gas fired water heater will be as A.O. Smith BFC series or equivalent. Condensing direct gas fired water heater with 8 bar rated and 12 bar tested glass lined tank, foam insulated and meeting energy class A per European regulations. Glass lining to be made by the water heater manufacturer to ensure glass matches the thermal and physic expansion properties of the steel. Heater will have a modulating pre-mix gas burner with automatic gas/air mixture regulation, easily converted from LPG to Natural gas. Internal double loop spiral burner chamber and heat exchanger will ensure a 97% heat transfer efficiency and prevent calcium build up on heat exchanger. Burner will be low NOx ( $\leq 30$ PPM) and low noise. Low maintenance inert electric anodes to ensure additional corrosion protection. Heater will have electronic programmable controls with week programs, status and fault indication on display, anti-legionella cycle, programmable circulation pump relay and BMS connection for fault report. Heater will be factory supplied with brass hot and cold water connection and drain valve. Venting material to be supplied by water heater manufacturer to ensure easy long distance safe flue gas discarding up to 100 meter.

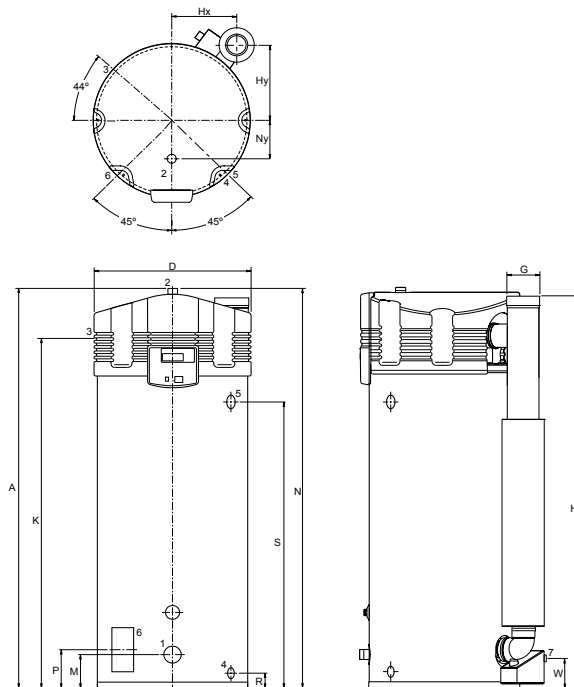
		BFC 28	BFC 30	BFC 50	BFC 60	BFC 80	BFC 100	BFC 120
<b>Gas data natural gas 2H (G20)</b>								
Input*	kW	29.0	30.0	47.0	57.0	78.0	95.0	116.0
Output	kW	31.0	32.7	50.3	60.4	84.2	100.7	121.8
Inlet pressure	mbar	20	20	20	20	20	20	20
Gas consumption**	m <sup>3</sup> /h	3.1	3.2	5.0	6.0	8.3	10.1	12.3
Flue gas discharge	°C	45	50	60	65	50	55	60
<b>Gas data propane 3P (G31)</b>								
Input*	kW	29,0	30,0	47,0	57,0	78,0	95,0	116,0
Output	kW	31,0	32,7	50,3	60,4	84,2	100,7	121,8
Inlet pressure	mbar	37	37	37	37	37	37	37
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	29	29	27	31	30	29
Heat loss	W	175	196	196	196	279	279	279
Noise level	dB(A)	45	45	45	45	45	45	45
Efficiency gross	%	107	109	107	106	108	106	105
Efficiency per ErP regulation	%	91	91	91	90	93	93	92
Energy class	-	A	A	A	A	A	A	A
Wieght empty	kg	177	214	214	214	480	480	480
Filled weight	kg	394	582	582	582	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)	800 (8)	800 (8)	800 (8)	800 (8)	800 (8)	800 (8)
Test pressure	kPa (bar)	1200 (12)	1200 (12)	1200 (12)	1200 (12)	1200 (12)	1200 (12)	1200 (12)
<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	196	235	235	235	501	501	501
Width packaging	mm	790	790	790	790	920	920	920
Height packaging	mm	1550	2080	2080	2080	2060	2060	2060
Depth packaging	mm	950	950	950	950	1020	1020	1020

		BFC 28	BFC 30	BFC 50	BFC 60	BFC 80	BFC 100	BFC 120
Tset = T60°C/Tcold = 10°C								
30 min. ΔT=50°C		280	320	480	570	730	860	1100
60 min. ΔT=50°C		550	600	910	1100	1500	1800	2100
90 min. ΔT=50°C		820	880	1400	1700	2200	2600	3200
120 min. ΔT=50°C		1100	1200	1800	2200	3000	3500	4200
Continuous ΔT=50°C	l/h	540	570	870	1100	1500	1800	2100
Recovery time ΔT=50°C	min.	24	39	26	21	20	17	14

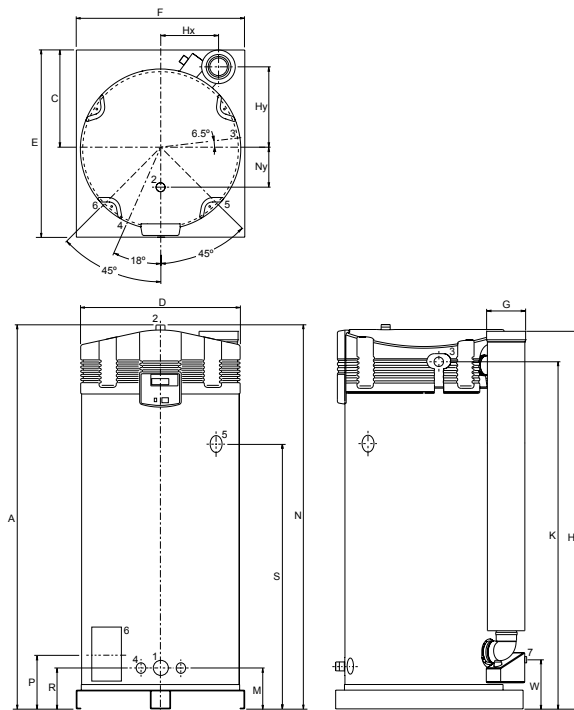
	BFC 28	BFC 30	BFC 50	BFC 60	BFC 80	BFC 100	BFC 120
A	1390	1925	1925	1925	2060	2060	2060
C	458	458	458	458	530	530	530
D	705	705	705	705	850	850	850
E	855	855	855	855	1000	1000	1000
F	755	755	755	755	900	900	900
G	100/150	100/150	100/150	100/150	130/200	130/200	130/200
H	1365	1890	1890	1890	1995	1995	1995
Hx	265	265	265	265	310	310	310
Hy	375	375	375	375	440	440	440
K	1285	1815	1815	1815	1855	1855	1855
M	170	160	160	160	225	225	225
N	1390	195	195	195	2060	2060	2060
Ny	205	205	205	205	205	205	205
P	170	175	175	175	290	290	290
R	85	75	75	75	225	225	225
S	900	1410	1410	1410	1425	1425	1425
W	150	150	150	150	240	240	240

1	Cold water (internal)	R 11/2
2	Hot water (internal)	R 11/2
3	Gas control (external)	R 3/4"
4	Tank drain valve (internal)	1" (26-60) 3/4" (80-120)
5	T&P valve (internal)	1" - 11.5 NPT
6	Cleaning and inspection opening	95 x 70
7	Condensation drainage (internal)	Ø 40
All dimensions are in mm		

BFC 28 - 60



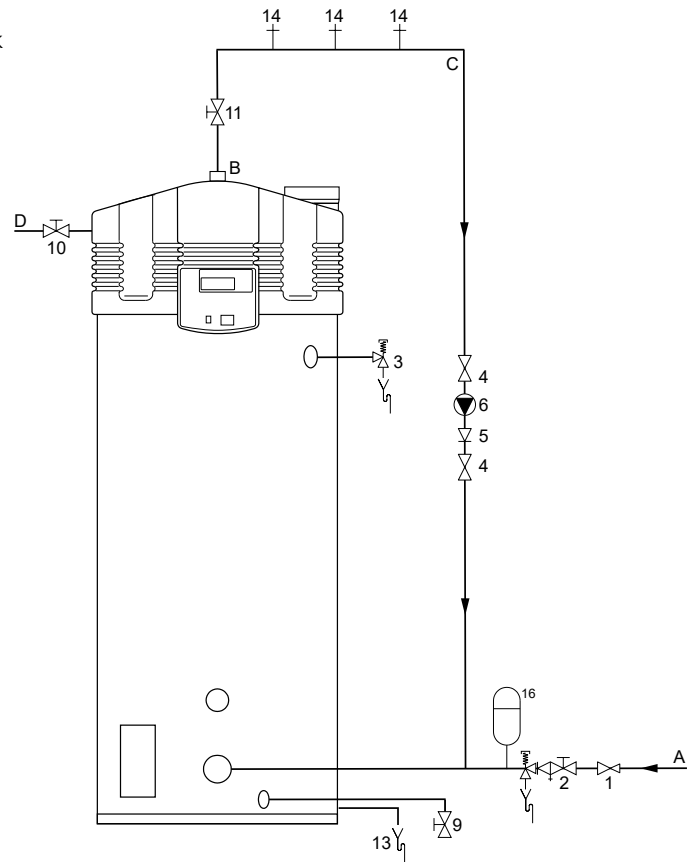
BFC 80 - 120

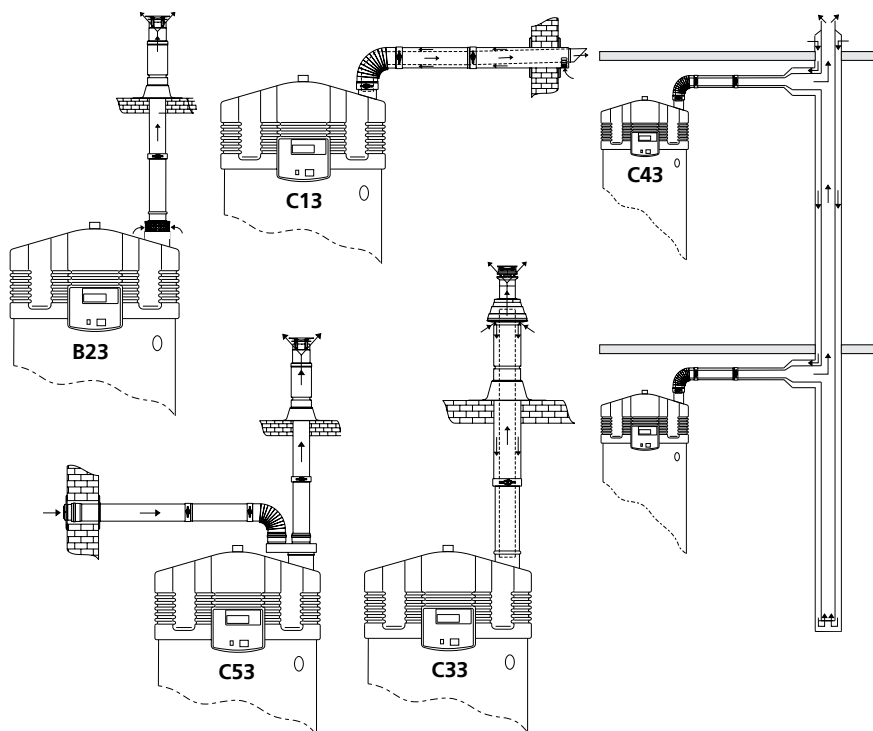


- 1 Pressure reducing valve
- 2 Inlet security group combination pressure relieve 8 bar, check valve, closing valve
- 3 T&P valve
- 4 Stop valve
- 5 Non-return valve
- 6 Circulation pump
- 9 Drain valve
- 10 Gas valve
- 11 Service valve
- 13 Condense drain
- 14 Hot water tap
- 16 Expansion vessel

- A Cold water supply  
 B Hot water outlet  
 C Circulation pipe  
 D Gas supply

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





	BFC 28 - 60	BFC 80 - 120
<b>Concentric</b>		
Diameter (mm)	100/150	130/200
Max. length (m)	40	15
Max. 45/90° bends	7	4
<b>Parallel (standard diameter)</b>		
Diameter (mm)	100	130
Max. length (m)	55	65
$L_{\text{equivalent}}/\text{bend } 90^\circ$ (m)	4.6	2.4
$L_{\text{equivalent}}/\text{bend } 45^\circ$ (m)	1.2	1.4
<b>Parallel (larger diameter for more length)</b>		
Diameter (mm)	130	150
Max. length (m)	100	100
$L_{\text{equivalent}}/\text{bend } 90^\circ$ (m)	2.4	2.6
$L_{\text{equivalent}}/\text{bend } 45^\circ$ (m)	1.4	1.6

### Concentric flues

It is **not** 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.

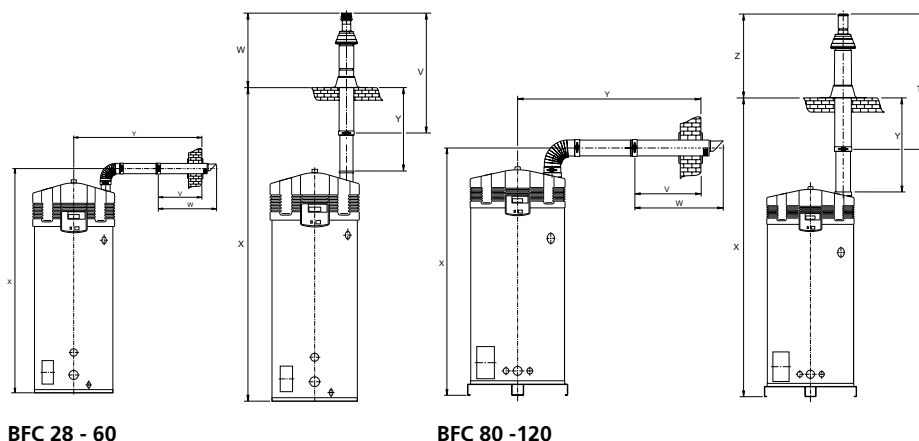
### Parallel flues

- 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 mm per metre.

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

	BFC 28	BFC 30 - 60	BFC 80 - 120
	Ø100/150	Ø100/150	Ø130/200
<b>Minimal space for wall duct (mm)</b>			
V	550	550	640
W	790	790	940
X	1535	2075	2320
X*	1985	2525	2680
Y	1480	1480	1620
Y*	1030	1030	1170
<b>Minimal space for roof duct (mm)</b>			
V	1500	1500	1730
W	1035	1035	1120
X	2965	3325	3620
X**	2015	2375	2670
Y	1415	1415	1560
Y**	465	465	610



BFC 28 - 60

BFC 80 - 120

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

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