

FASTflo

Installation Design Guide

Continuous Flow Wall Hung Balanced Flue
Water Heaters for Natural Gas and Propane

WH42, WH56, WHX56, LWH56, WHX56, LWHX56



Working towards
a cleaner future





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Further information and assistance can be obtained from:

Andrews Water Heaters
Wood Lane, Erdington,
Birmingham B24 9QP

Tel: 0845 070 1055
Fax: 0845 070 1059
Email: andrews@baxigroup.com
Website: www.andrewswaterheaters.com

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Andrews Installation Design Guide for WH and WHX Model Water Heaters

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Fig No.1

Andrews WH and WHX Single Water Heater Installation Without Secondary Return

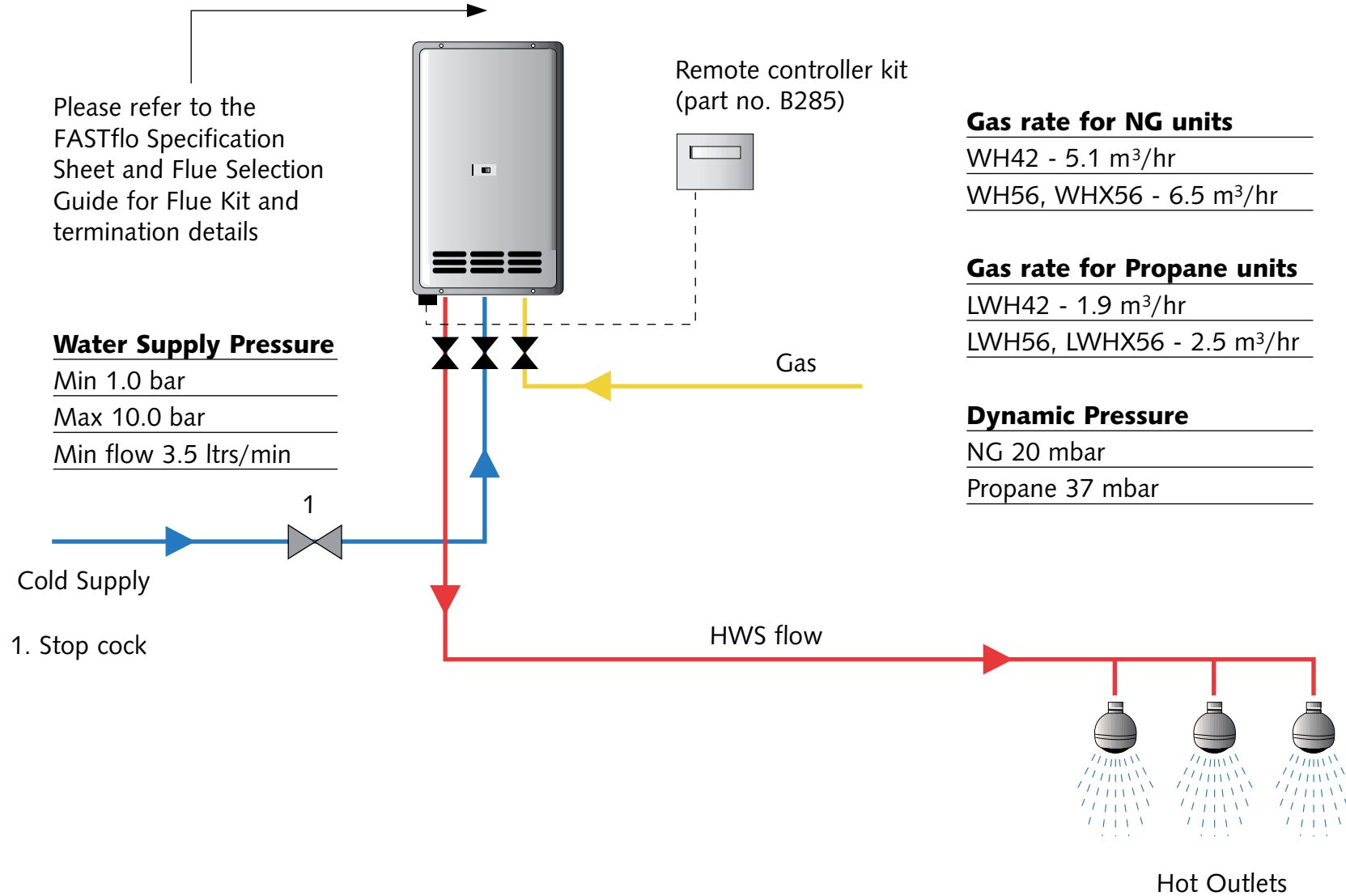


Fig No.2

Andrews WH and WHX Single Water Heater Installation with Secondary Return

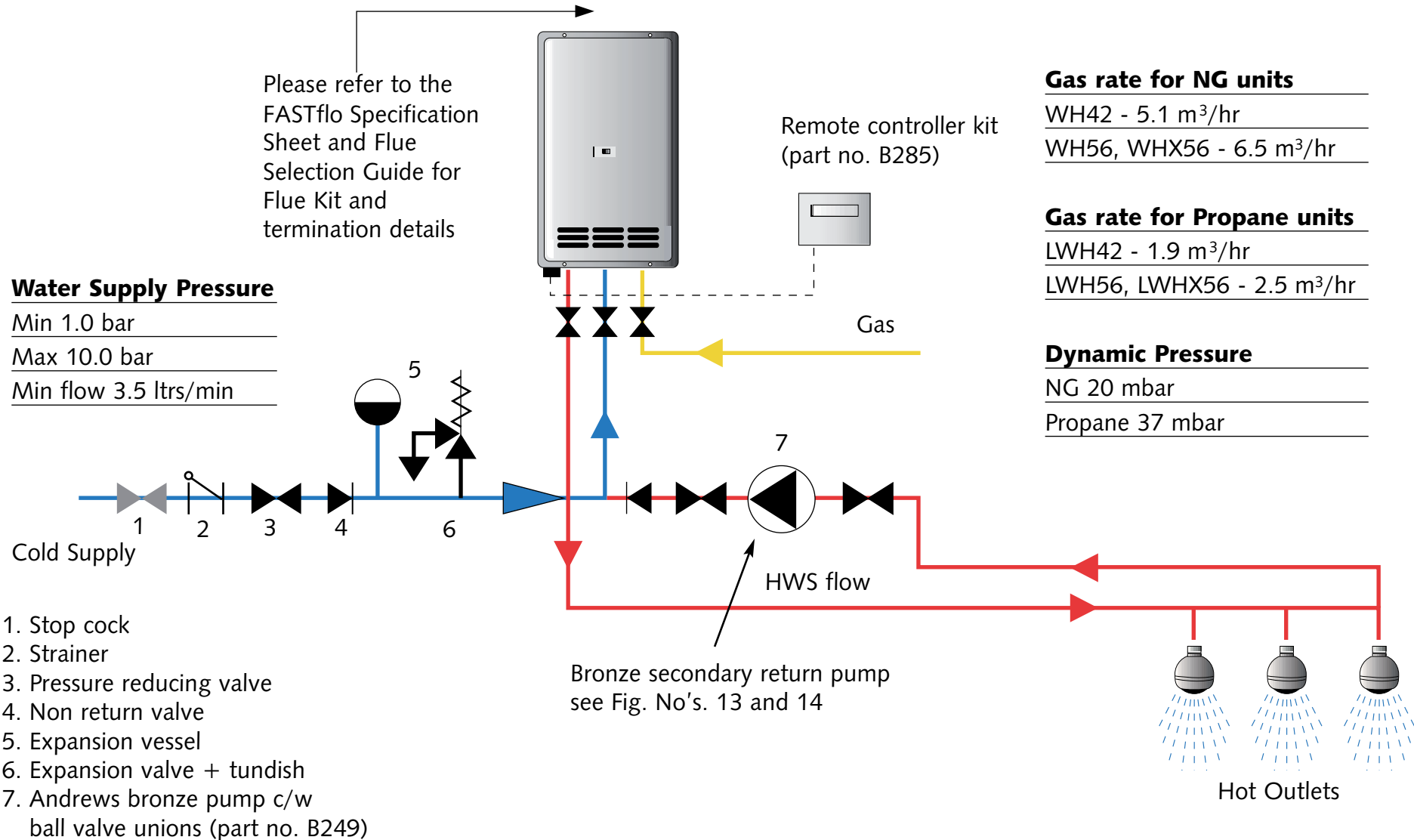


Fig No.3

Andrews WH and WHX Multiple Water Heater Installation without Secondary Return

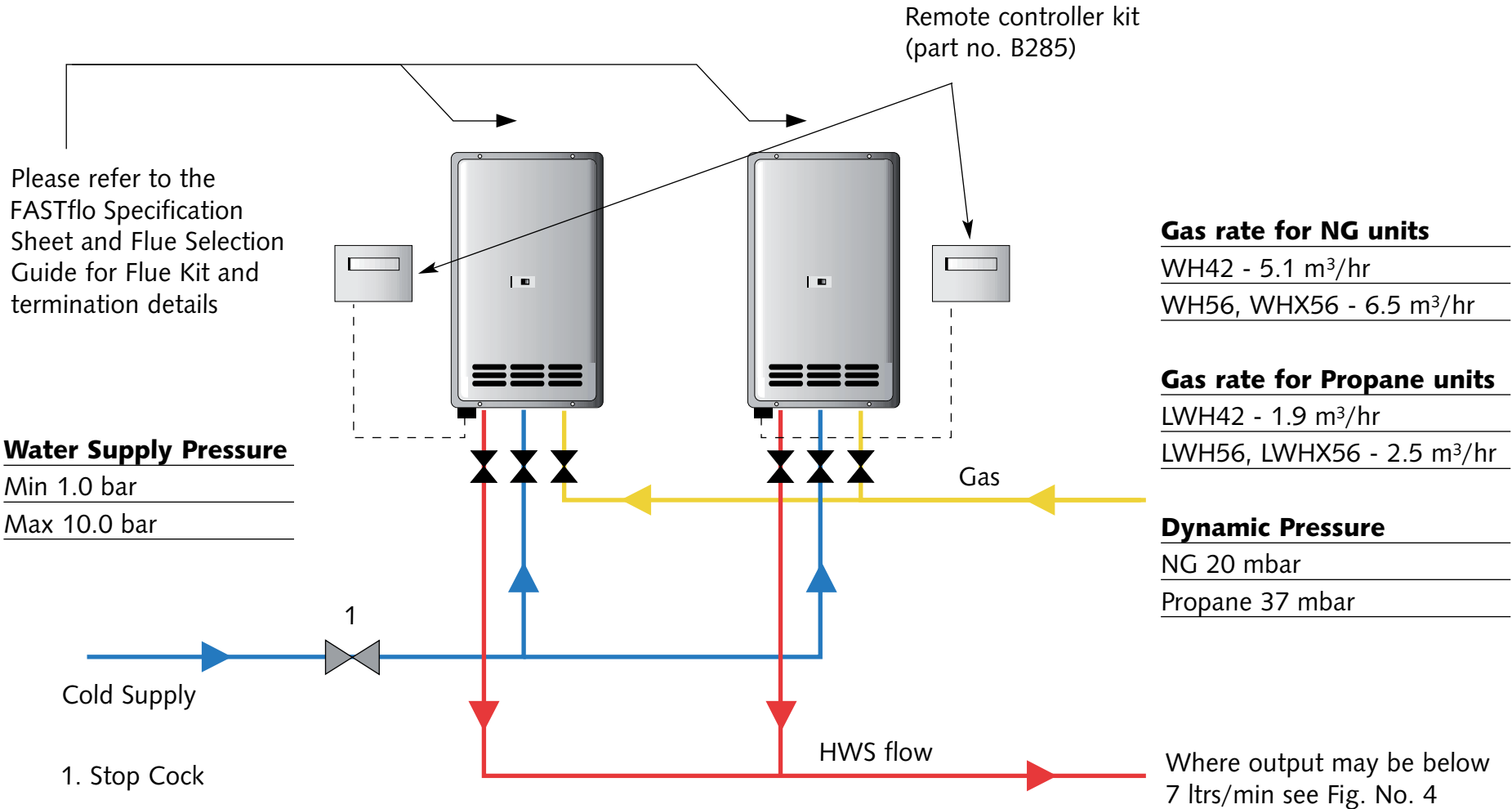


Fig No.4

Andrews WH and WHX Multiple Water Heater Installation with Quick Connect Cord Kit

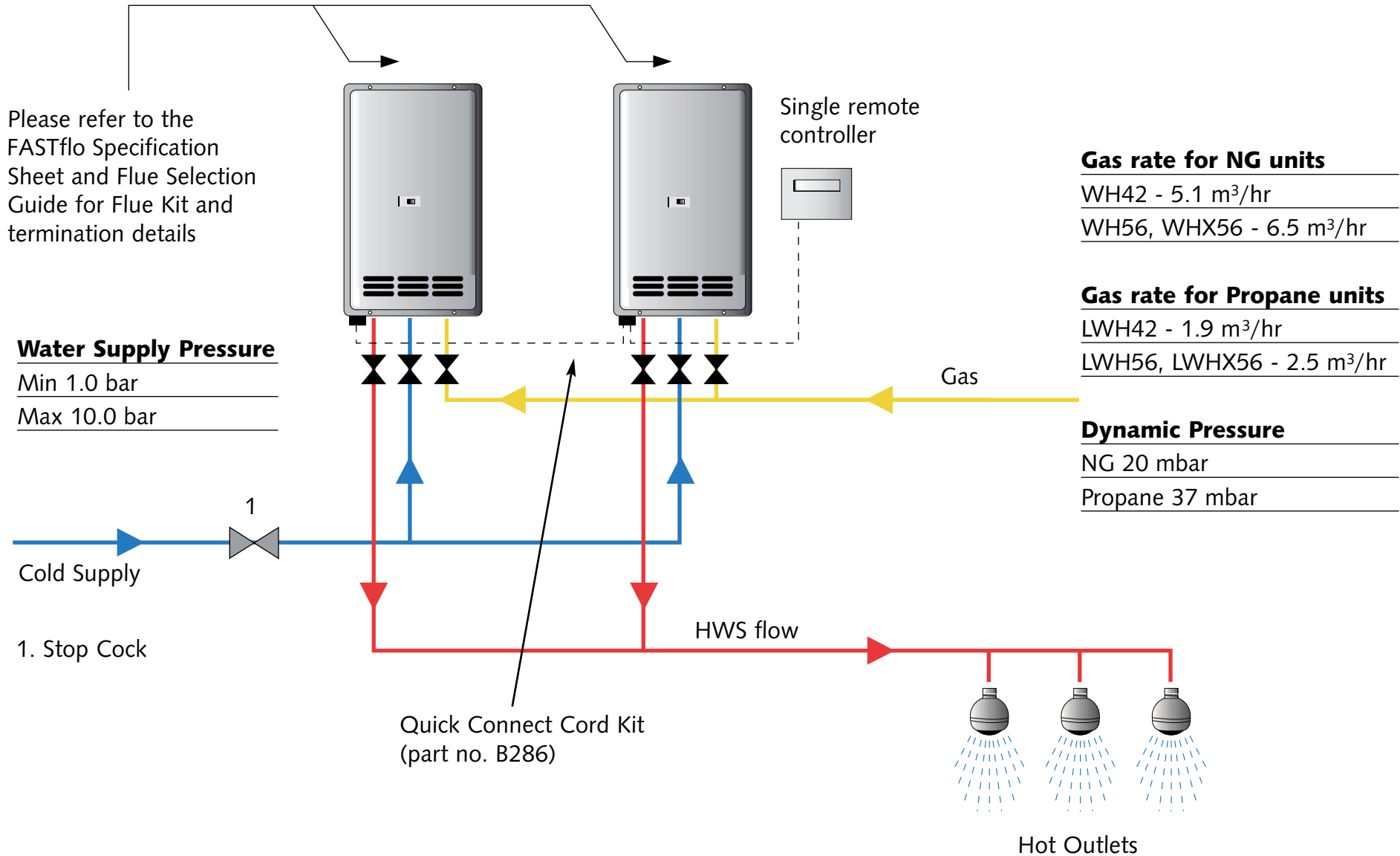


Fig No.5

Andrews WH and WHX Multiple Water Heater Installation with Secondary Return

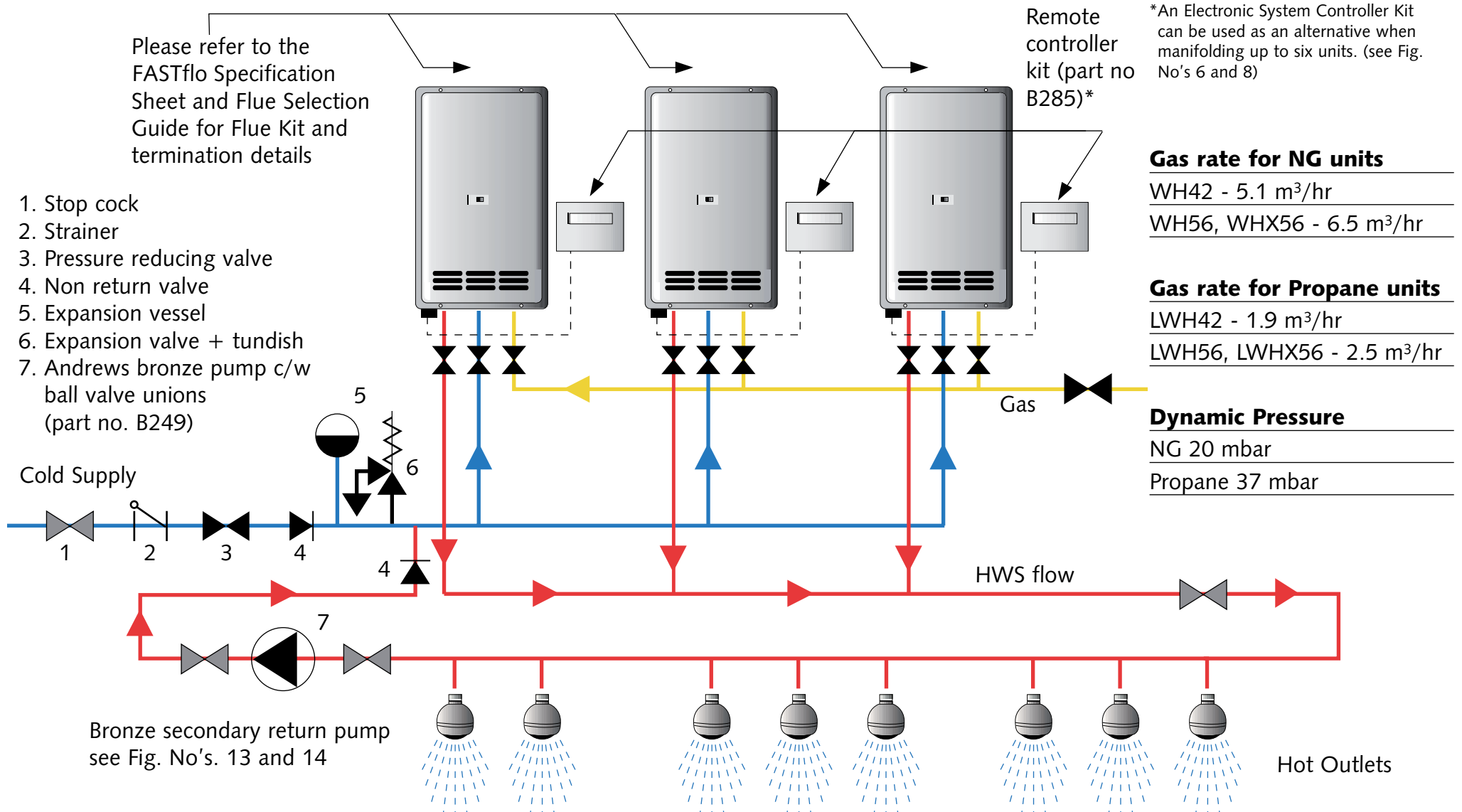


Fig No.6

Andrews WH56 and WHX56 Multiple Water Heater Installation with System Controller Kit

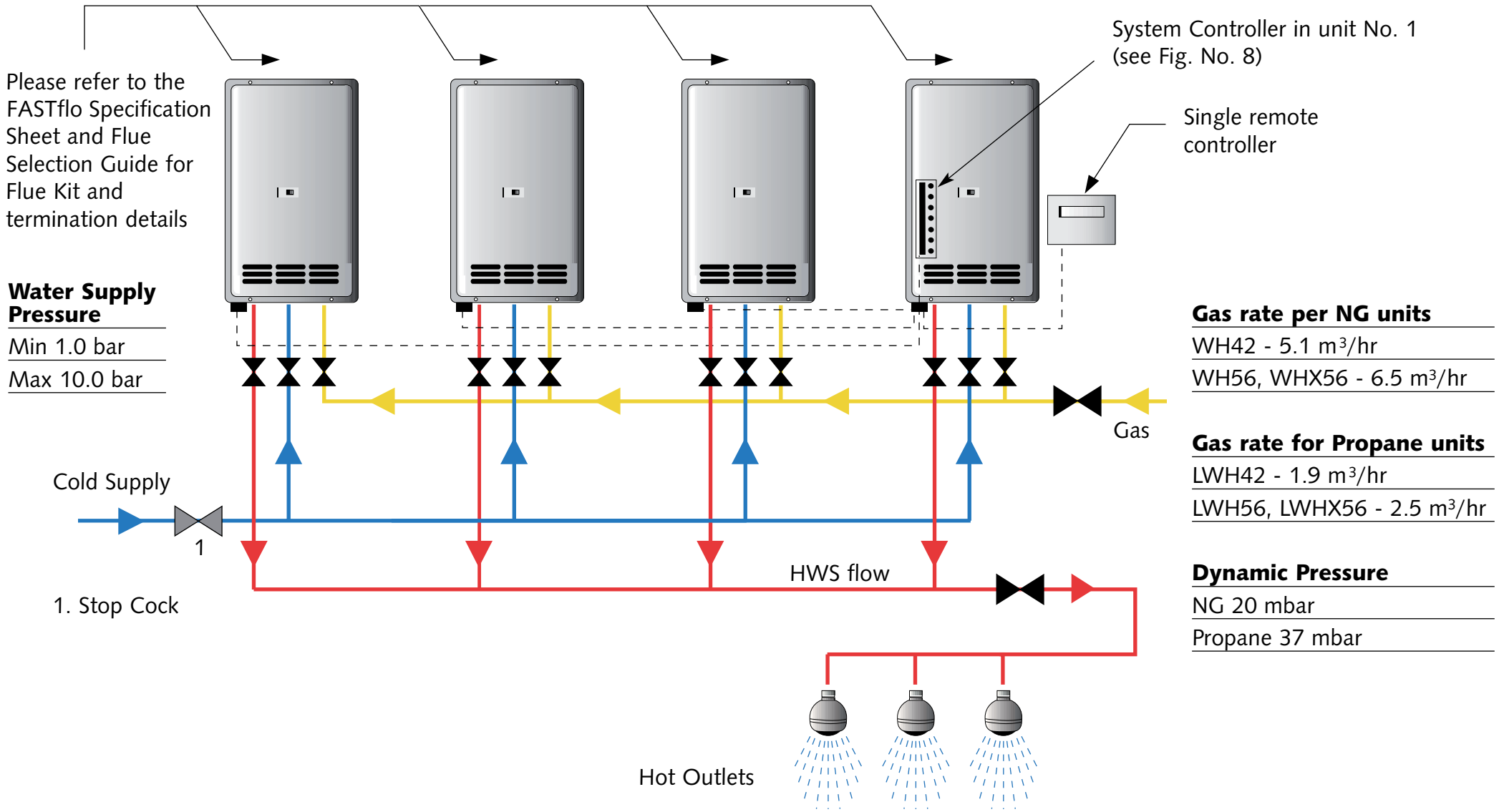


Fig No.7

Andrews WH and WHX Water Flow Rates

Performance Chart

Water flow
at different
temperature
rises

Andrews Model Reference	Temperature Rise 25°C		Temperature Rise 35°C		Temperature Rise 45°C		Temperature Rise 55°C		Temperature Rise 65°C		Temperature Rise 75°C	
	L sec	L min	L sec	L min	L sec	L min	L sec	L min	L sec	L min	L sec	L min
WH42,LWH42	0.40	24.0	0.29	17.4	0.22	13.2	0.18	10.8	0.15	9.2	0.13	8.0
WH56, LWH56	0.53	31.8	0.38	22.8	0.30	18.0	0.24	14.4	0.20	12.3	0.18	10.6
WHX56,LWHX56	0.53	31.8	0.38	22.8	0.30	18.0	0.24	14.4	0.20	12.3	0.18	10.6

The flow rate will vary dependant upon the temperature selected at outlet and the incoming water temperature. The flow rate can be calculated using the following formula or by reference to the charts above.

WH42, LWH42 = 42 kW output
WH56, LWH56 = 55.8kW output
WHX56, LWHX56 = 55.8 kW output

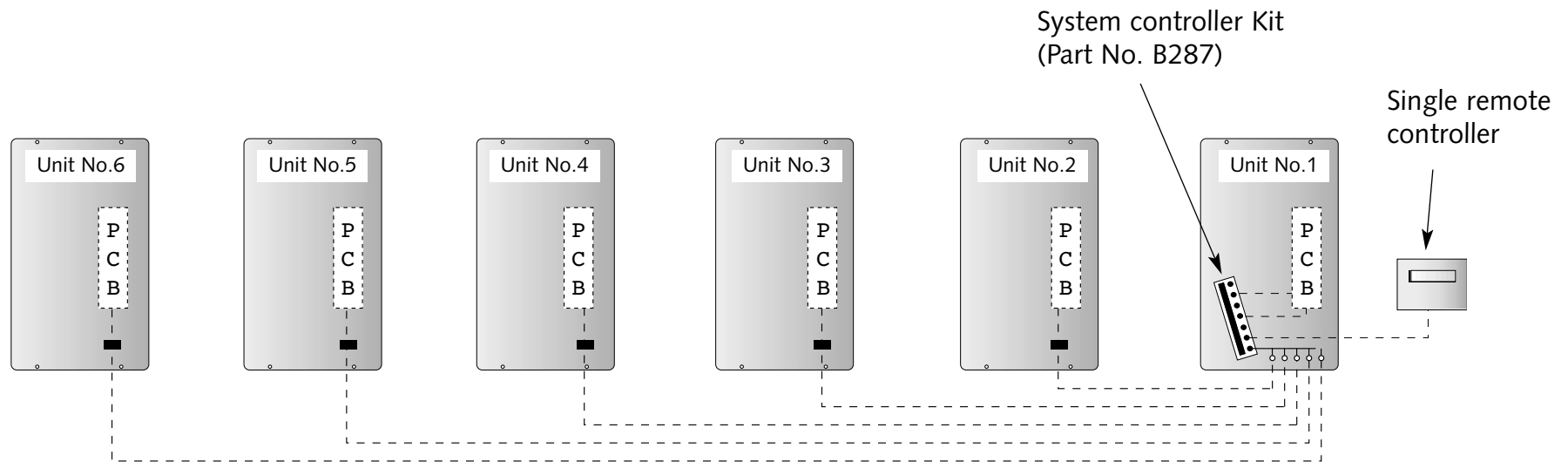
$$\text{Flow rate L/S} = \frac{(\text{heater output}) \text{ kW}}{\Delta t (\text{temperature rise}) \times 4.2 \text{ specific heat}}$$

In addition to the above the maximum flow through each heater is pre-set independent of temperature, maximum flow rate for the WH42 is 24 L/min and maximum flow rate for the WH56 and WHX56 is 31.8 L/min.

Fig No.8

Andrews System Controller Kit (Part No. B287) for WH56, LWH56, WHX56

The System Controller Kit can be used as an alternative to the Quick Connect Cord Kit (two unit installation) or for controlling up to six manifolded water heaters. The master unit (No.1) contains the System Controller module and includes plug connectors to enable the control cords from the other units to be connected up to the master unit. In addition the System Controller incorporates the following standard features, BEMS fault indication, Remote 'Power On' indication, Primary Pump connection via cylinder thermostat, Secondary Circulation Pump connection and Remote Switching. A comprehensive installation manual is available from our sales department.



Typical installation

System operation

The control panel randomly selects some heaters at the ready stage and some at the standby stage, and heaters will start dependent upon water flow and temperature settings. The system rotates the lead and standby units after every eight hours operating time. As the flow rates increases additional units will fire thus maintaining the required system flow temperature. The remote controller must be connected to Unit No. 1 and temperature settings on this controller will be communicated to the other manifolded heaters on the system. The System Controller is not required when the installation incorporates a storage cylinder/ buffer vessel or if a constant large volume of hot water is required.

Fig No.9

Andrews WH & WHX Unvented System Kits

If continuous flow water heaters are used on circulation systems or linked to a storage cylinder/buffer vessel an unvented system kit is required to allow for expansion of the hot water system. The kit includes the necessary safety devices required to conform to the current building regulations.

Three sizes of kit can be supplied and each contains a combined strainer/pressure reducing valve set to 3.5 bar, check valve, expansion valve set to 6.0 bar, tundish, 5 litre expansion vessel, wall bracket and hose.

When the system includes a storage cylinder/buffer vessel, a combined temperature/pressure relief valve must be sized to suit the total input of all the water heaters installed (see table below).

This valve must be located at the top of the storage unit (see Fig. No. 10). In addition the size of the expansion vessel must also be increased to suit both the storage cylinder plus the contents of the system pipework (see expansion vessel table).

Unvented System Kit

Part No.	Size
B235	$\frac{3}{4}$ inch dia.
B234	1 inch dia.
B276	$1\frac{1}{4}$ inch dia.

Expansion Vessel

Part No.	Size
C782	25 litre, 3.5 bar
C789	40 litre, 3.5 bar
E047	60 litre, 3.5 bar
C890	80 litre, 3.5 bar

Temperature and pressure Relief Valves

Part No.	Total Output	Quantity & Size of Valves
C380	Up to 56kw	1 x 1 inch
E242	Up to 112kw	1 x $1\frac{1}{2}$ inch
E242+C456	Up to 126kw	1 x $1\frac{1}{2}$ inch + 1 x $\frac{3}{4}$ inch
E291	Up to 168kw	1 x 2 inch
E291+C380	Up to 224kw	1 x 2 inch + 1 x 1 inch

Tundishes

Part No.	Size
C384	1 inch - $1\frac{1}{4}$ inch
E326	1 $\frac{1}{2}$ inch - 2 inch
E497	2 inch - $2\frac{1}{2}$ inch
E497	2 inch - $2\frac{1}{2}$ inch
E497+C384	2 inch - $2\frac{1}{2}$ inch + 1 inch - $1\frac{1}{4}$ inch

Fig No.10

Andrews WH and WHX Single Water Heater Installation with ST Range Storage Cylinder

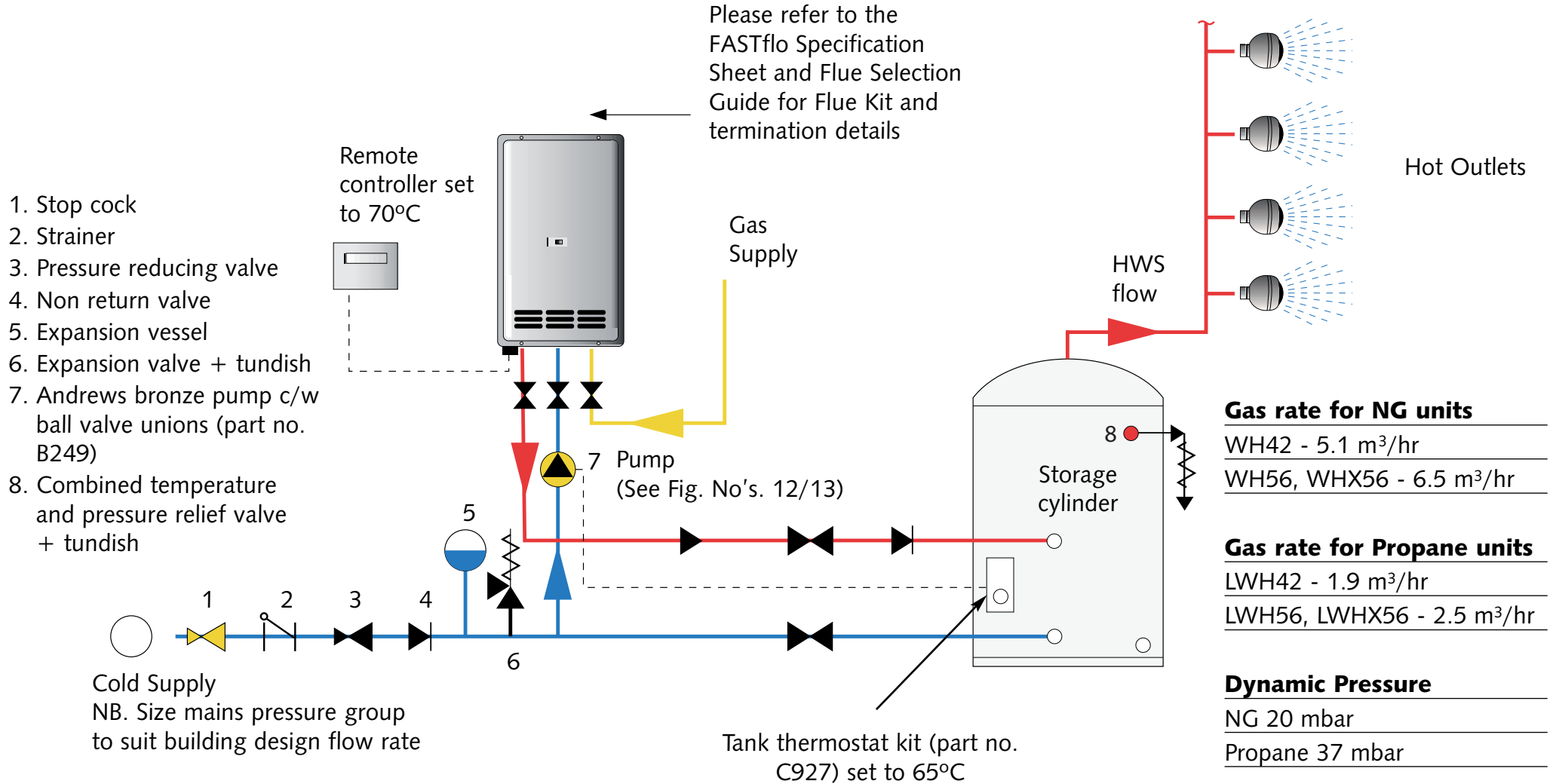


Fig No.11

Andrews WH and WHX Multiple Water Heater Installation with ST Range Storage Cylinder, Quick Connect Cord Kit and Secondary Return

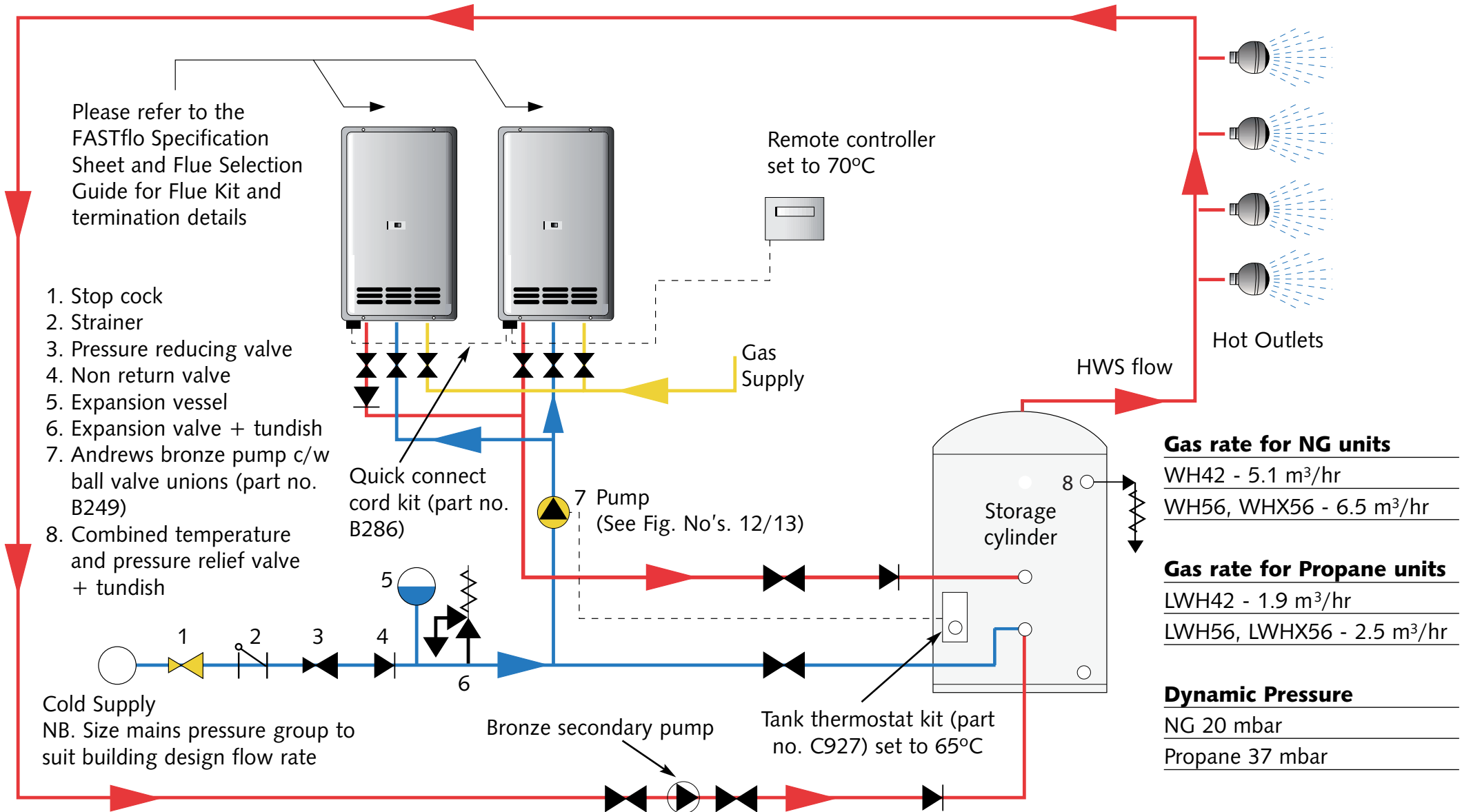


Fig No.12

Andrews WH and WHX Multiple Water Heater Installation with ST Range Storage Cylinder and Secondary Return

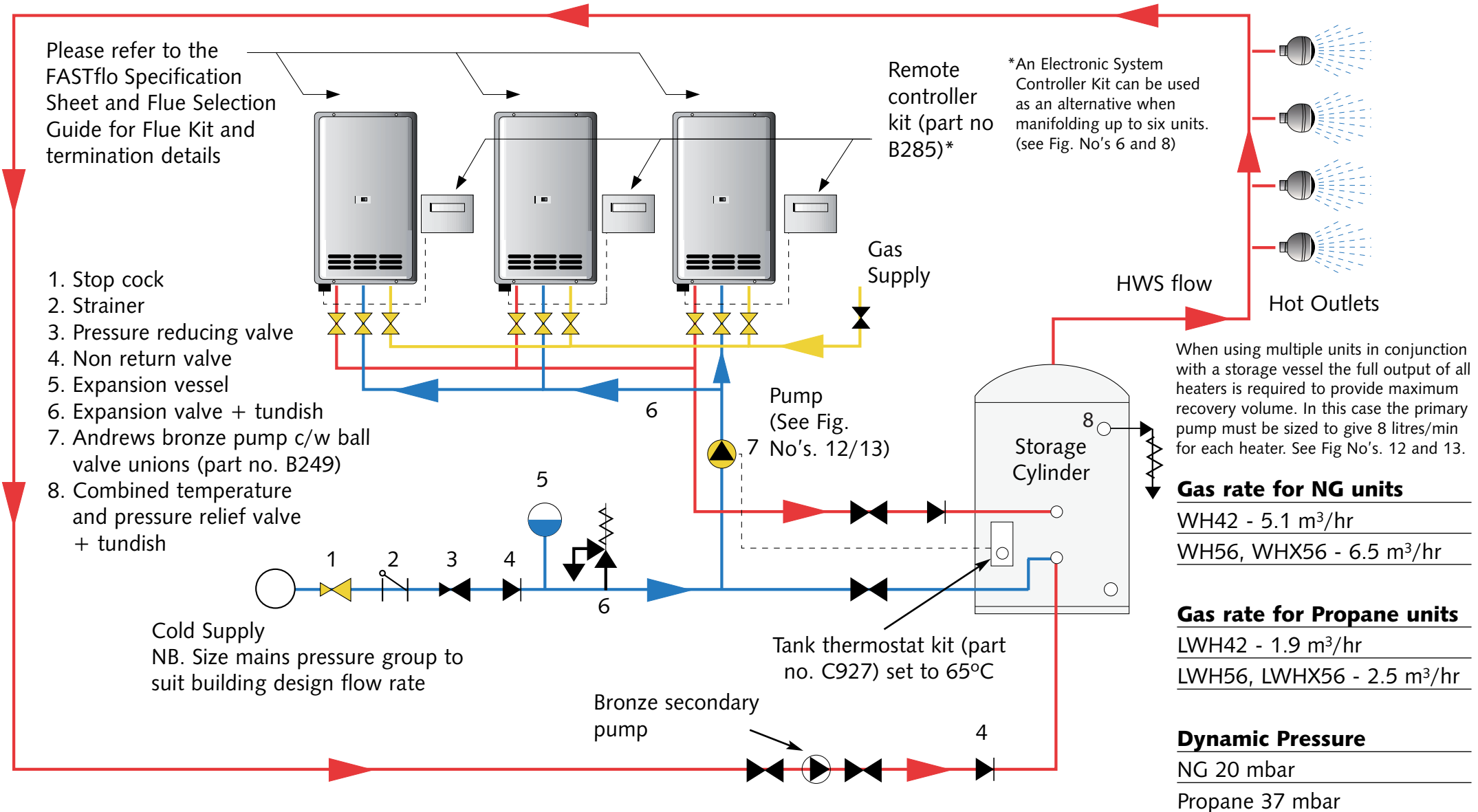


Fig No.13

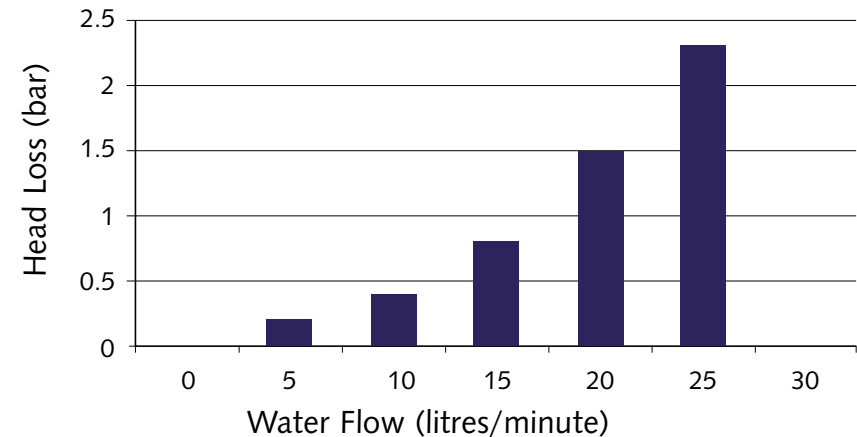
Flow Rate Head Loss and Pump Sizing

The WH and WHX units will operate within a water inlet pressure range from 1.0 bar to 10.0 bar.

When a pump is used with a storage system or for secondary return circulation only bronze or stainless steel pumps must be used.

The pump must be sized to give a minimum flow rate of 8 L/min through each heater.

The head loss through the FASTflo range of products is due to the friction generated when the water flows through the heat exchanger and associated components.



Pump Selection using multiple heaters (pump required for first unit only)

Number of units	Flow rate required	Approximate head	Speed setting
1	8 l/min - 0.13 l/sec	50 kPa	2

Pump selection using multiple heaters (flow through all units)

2	16 l/min - 0.27 l/sec	50 kPa	2
3	24 l/min - 0.40 l/sec	60 kPa	3
4	32 l/min - 0.53 l/sec	60 kPa	3
5	48 l/min - 0.67 l/sec	60 kPa	3
6	48 l/min - 0.80 l/sec	60 kPa	3

A suitable 3 speed bronze pump kit with ball valve unions to 28mm cu. can be supplied by Andrews, part no.B249 (see Fig No. 14)

Fig No.14

Pump Curves for Andrews 3 Speed Bronze Circulating Pump. Part No.B249

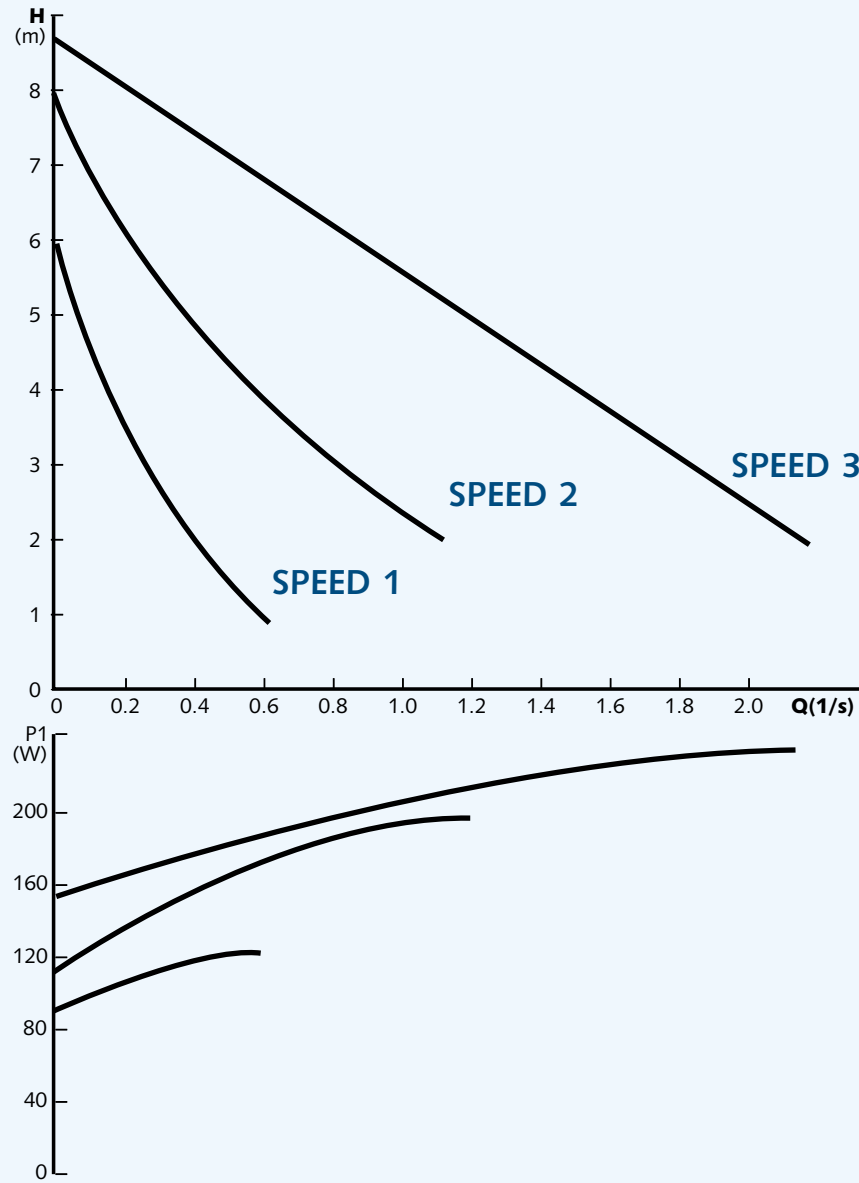


Fig No.15

Dimensions WH42/LWH42/WH56 and LWH56

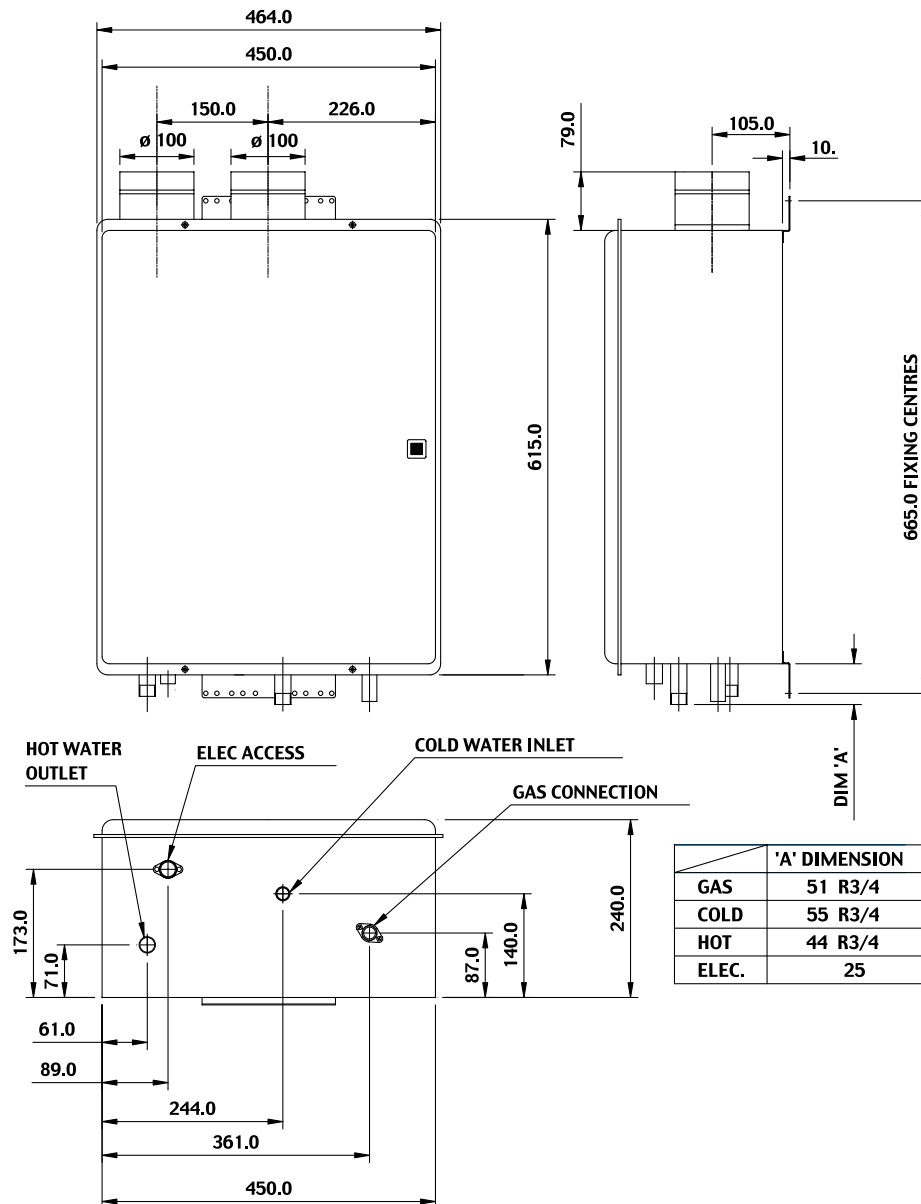


Fig No.16

Dimensions WHX56 and LWHX56

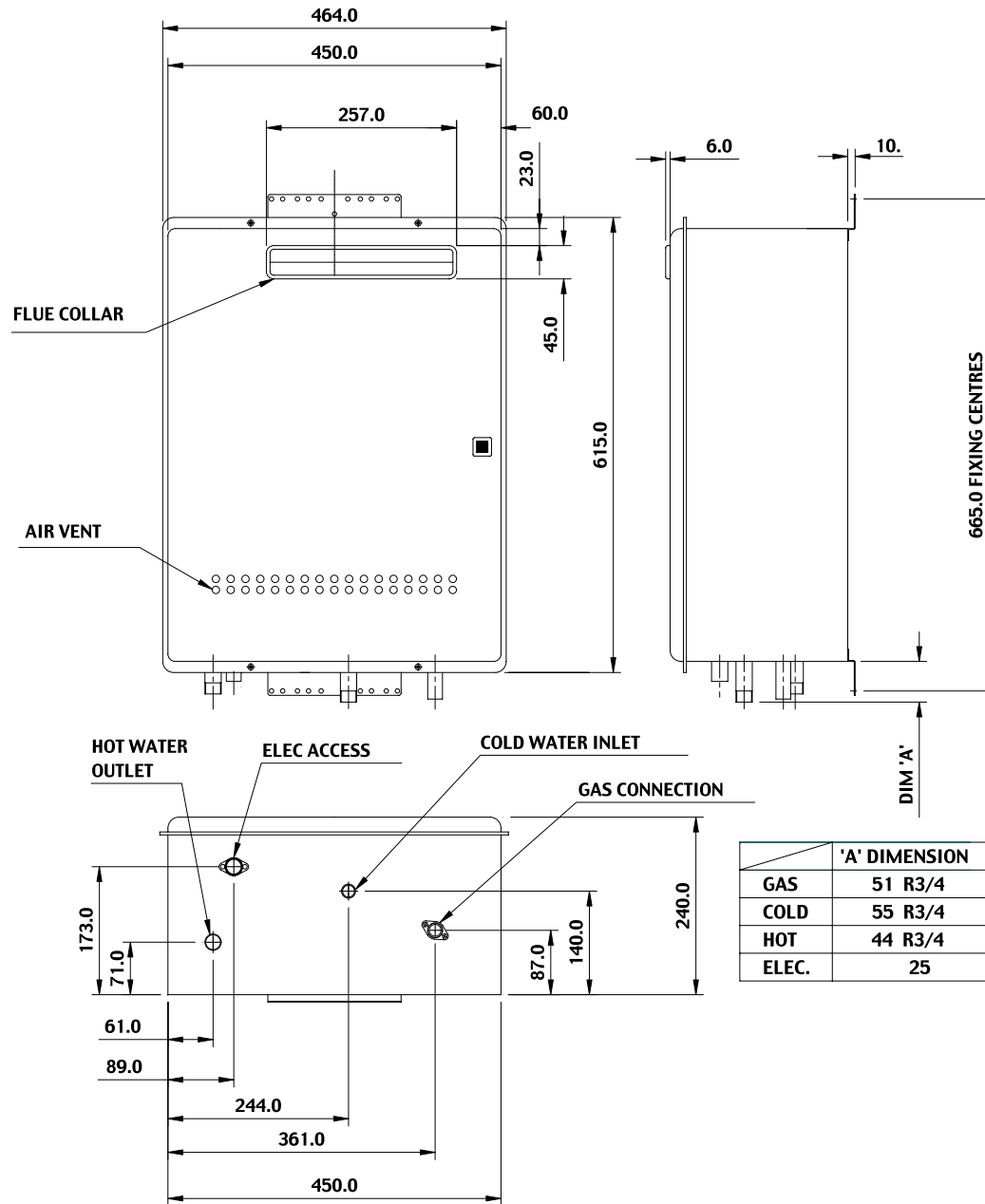


Fig No.17

WH42, LWH42, WH56 and LWH56 Pre-assembled dual manifold unit dimensions

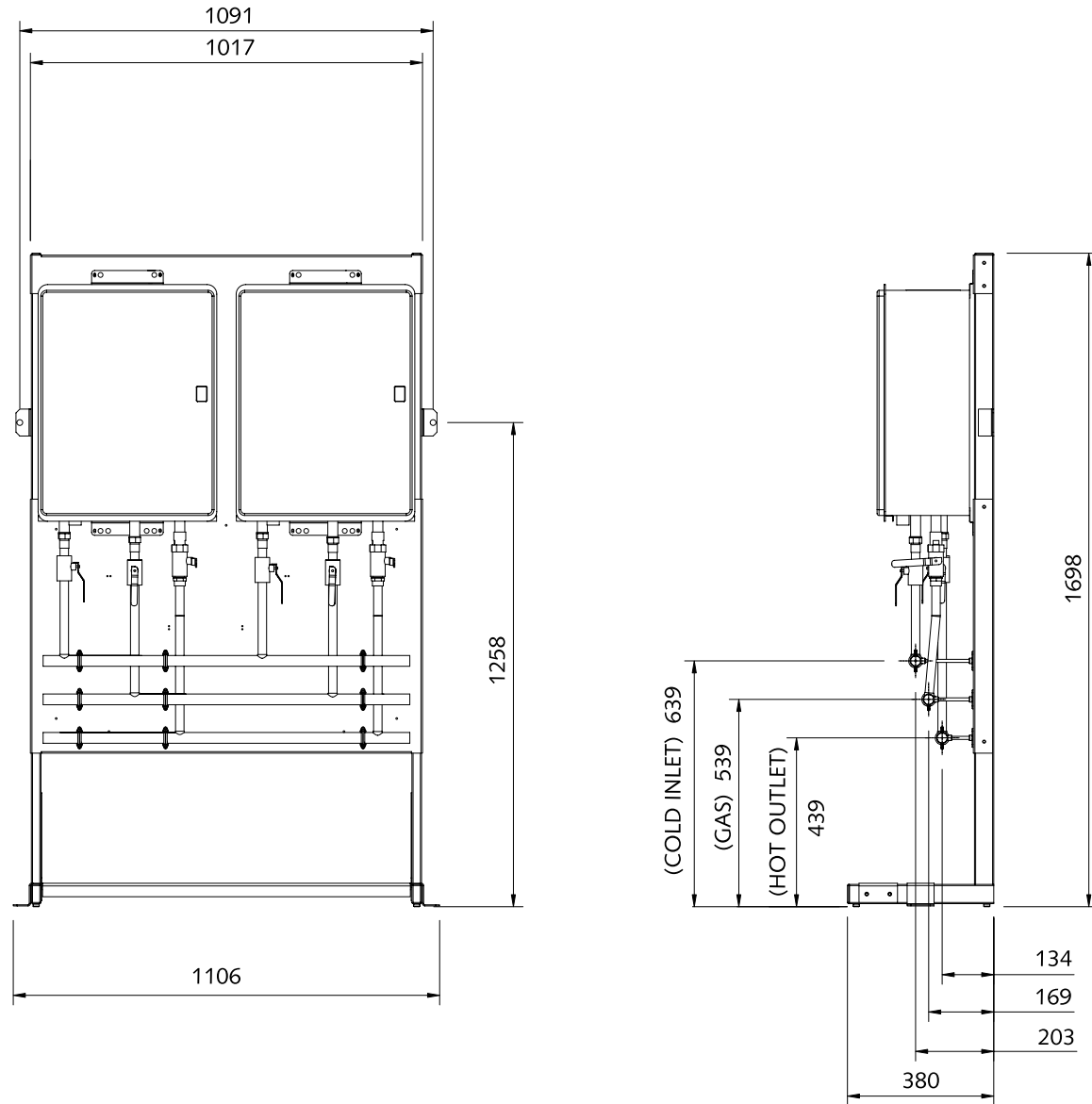


Fig No.18

WH42, LWH42, WH56 and LWH56 Pre-assembled triple manifold unit dimensions

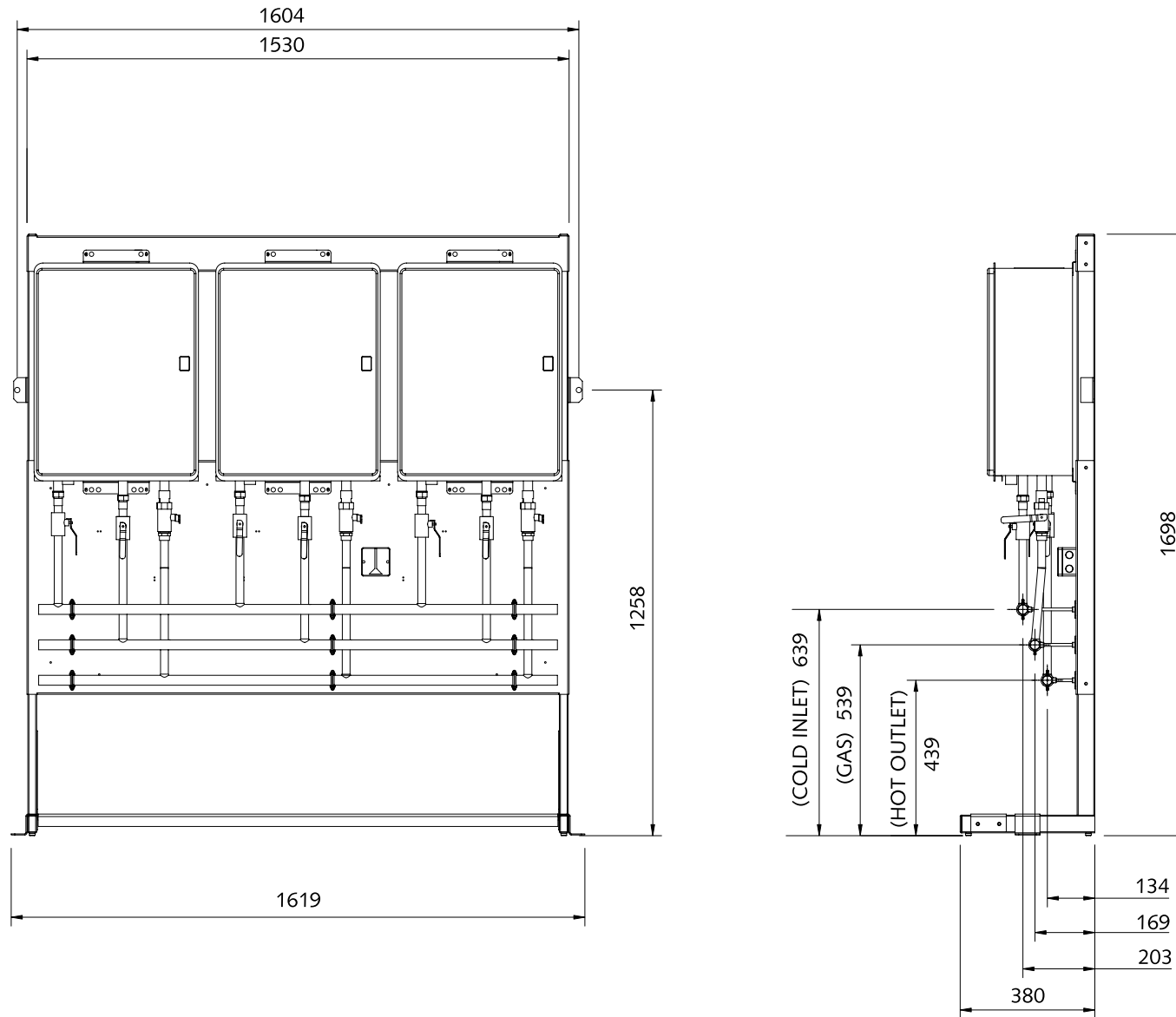
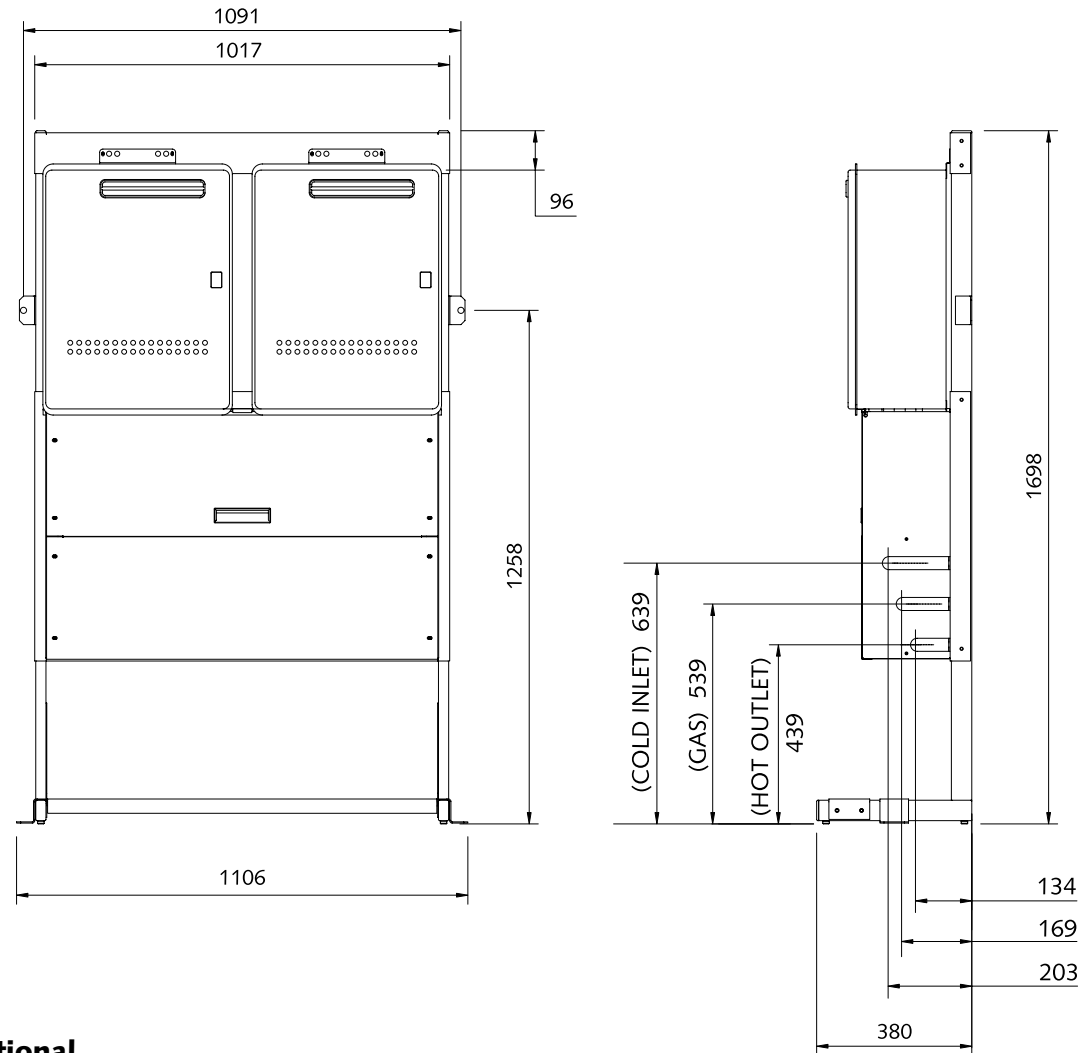


Fig No.19

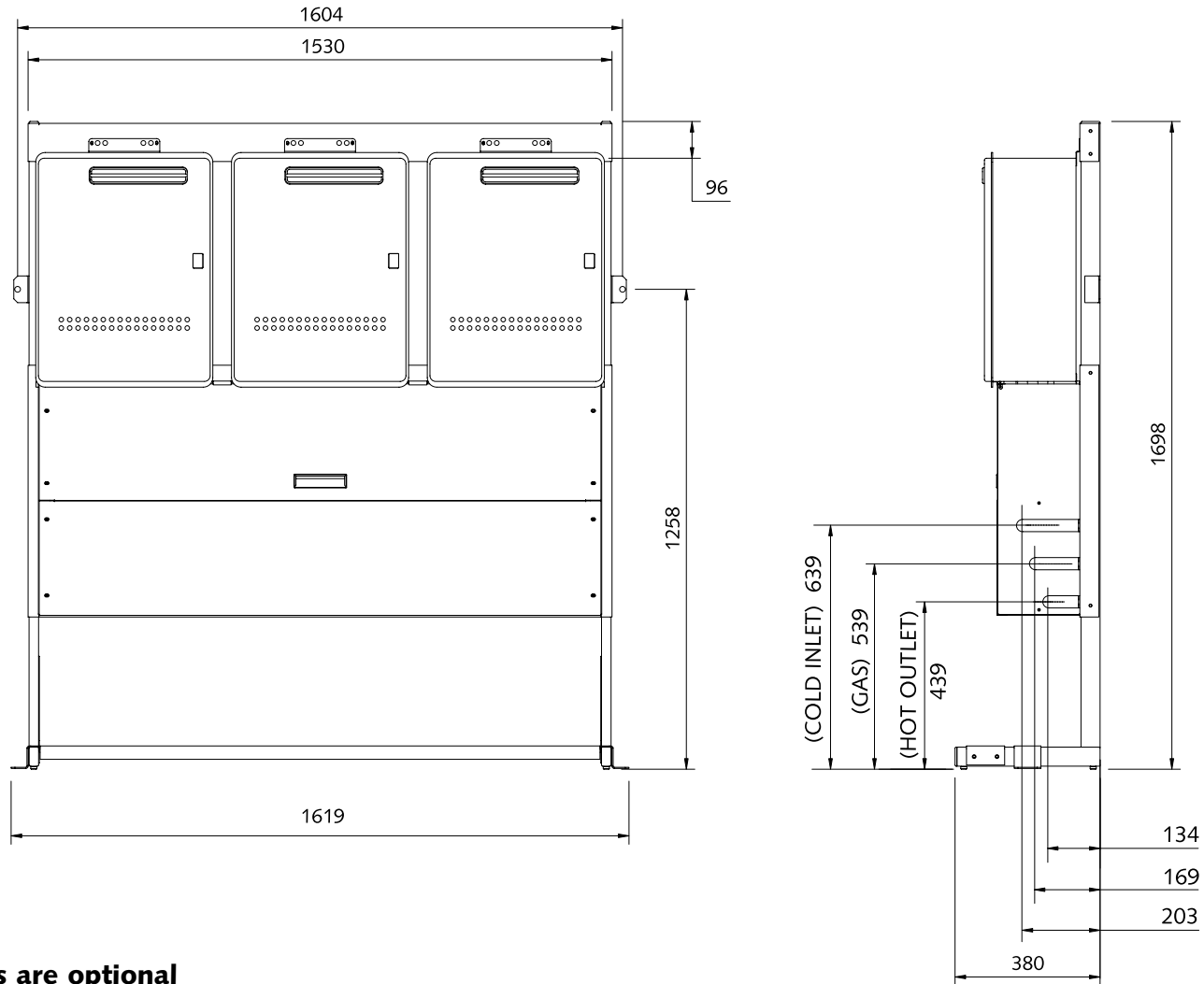
WHX56 and LWHX56 Pre-assembled dual manifold unit dimensions



Note: Pipework covers are optional

Fig No.20

WHX56 and LWHX56 Pre-assembled triple manifold unit dimensions



Note: Pipework covers are optional

PART OF BDR THERMEA

Baxi Commercial Division
Wood Lane, Erdington,
Birmingham B24 9QP
Email: andrews@baxigroup.com
www.andrewswaterheaters.co.uk

Sales:
0845 070 1056
Technical:
0845 070 1057

