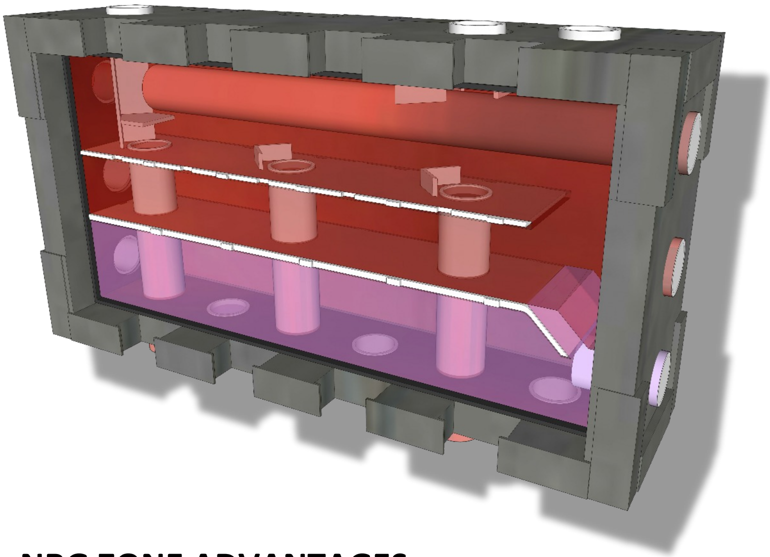
www.nrgawareness.com

NRG ZONE CENTRAL HEATING MANIFOLD
For the Installation of Heat Pumps, Boilers, Gravity-fed or Multi-Boiler Applications

TECHNICAL GUIDANCE, DESIGN AND INSTALLATION MANUAL

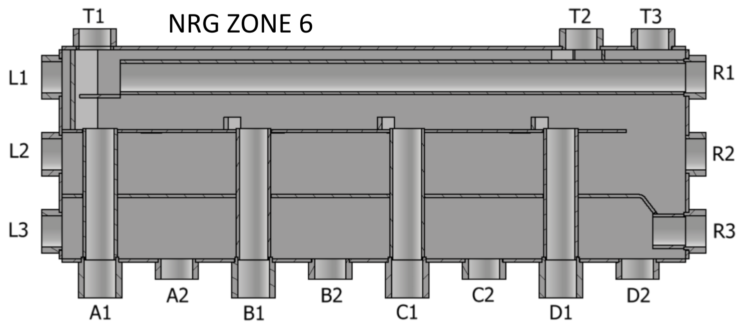


NRG ZONE ADVANTAGES:

- Usable for single appliance systems or inter-linking multiple heat inputs from boilers, heat pump etc.
- Used to interlink appliances to controlled zones.
- Built-in; bypass, air separation function and system neutral point.
- Simplifies Solid Fuel installation and systems Interlinking
- Trouble-free operation with increased safety and system efficiency
- Standard units are fully insulated
- Simple or complex systems for domestic or commercial applications designed in minutes
- Reduce installation labour, materials and over-all system costs.
- Easily configured as a chemical dosing vessel
- Optimise system conditions for, heat pumps, condensing oil or gas boilers and solid fuel appliances to improve efficiency and reduce running costs.

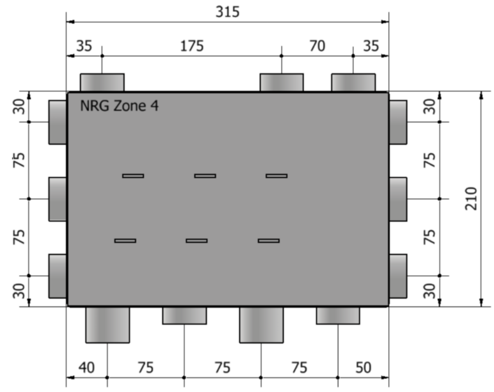
1.1 - FLOW CHAMBER

- Top Chamber
- Connection L1 & R1 are 1” or 1 ¼” female iron flow ports.
- A1, B1, C1 & D1 are 1” female iron flow ports
- Connections T1, T2 & T3 are 1” female iron and have altering functions.



1.2 - BYPASS CHAMBER

- Center Chamber
- Connections L2 & R2 are 1” or 1 ¼” female iron and have varying functions.



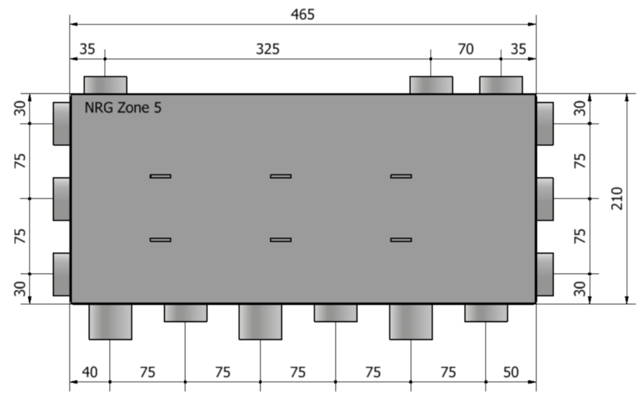
1.3 - RETURN CHAMBER

- Bottom Chamber
- Connection L3 & R3 are 1” or 1 ¼” female iron return ports.
- Connection A2, B2, C2 & D2 are 1” female iron return ports.

1.4 - ZONE CONFIGURATION

The following zone configurations are for standard applications. Alternative layouts for other system strategies are set out in this manual or on our website, www.nrgawareness.com.

- The zone flow connection ports are labelled A1, B1, C1 & D1.
- The best location for zone pumps is on the flow connections – A1, B1, C1 & D1.
- Non-return valves are generally to be fitted on each zone return, A2, B2, C2 & D2 to prevent any inadvertent heat drift in zones that are not calling for heat.
- For pumped DHW zones; a non-return valve should be fitted to the flow input to the cylinder coil to prevent gravity-fed back feeding of the stored hot water.



1.5 NRG ZONE HYDRAULIC CHARACTERISTICS

The internal hydraulic carrying capacity of the NRG Zone is the equivalent of a 2 ½“ (DN65) pipe. The total flow rate of any connected input or output ports must not exceed the manifold’s capacity (See Table 1).

The pipe to the NRG Zone may have to be larger than the port connections to carry the necessary flow-rate for the circuit.

Table 1 calculations use a maximum pipe velocity of 1.5 m/s for the heat distribution pipework. This is the recommended pipework limit as a higher water speed will increase friction and pipe noise, resulting in additional workload for the pump.

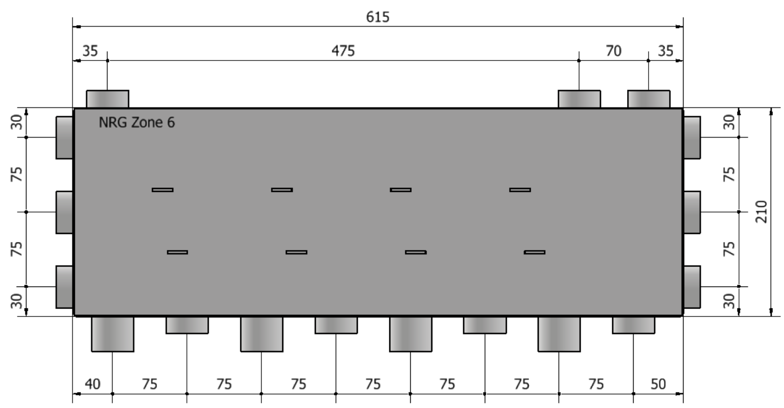


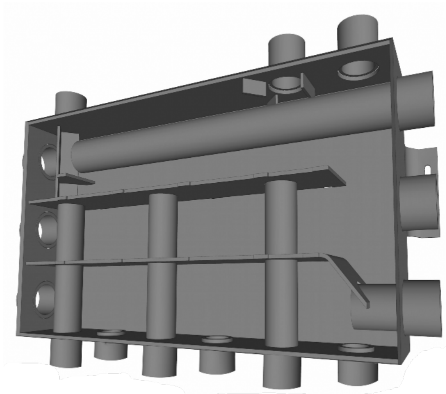
Table 1: NRG Zone Connection Ports Heat Carrying Capacity

Pipe Diameter	Flow Rate	ΔT 5°C	ΔT 10°C	ΔT 15°C	ΔT 20°C
BSP	**L/s**	**kW**	**kW**	**kW**	**kW**
1”	0.84	17.5	35	52.4	69.9
1 ¼”	1.45	30.2	60.5	90.7	121
2 ½”	4.63	96.9	193.7	290.6	387.4

***We thank you for purchasing the NRG Zone manifold. This manual contains technical and installation guidelines on how to use the system correctly*.**

2.0 Introduction

Fig 1



Central heating manifolds are revolutionising central heating designs and installations in the same way that system boilers did to the boiler industry some years ago. NRG Zone allows installers to move away from the traditional on-site assembly of fittings and bits & pieces of plumbing equipment to a preconfigured system directly to site in the secure knowledge that the NRG Zone performs as expected every time.

When installing any new open or sealed heating system or integrating new appliances or zones into an existing property, a properly planned piping design and installation is essential to ensure an optimised system performance.

NRG Zone takes a systematic approach to the design and installation of heating systems with improved installation speed, simplicity and neatness along with; reduced design time, component count, installation costs and running costs. It eliminates the hassle generally associated with the design of single or multi-appliance wet installations and reduces complexity in all forms; from standard single appliance projects to more difficult interlinked system configurations. The NRG Zone's system's concepts are well proven and comply with good practice and effective design principles already well established in the heating industry, including; hydraulic separation or primary-secondary pumping, temperature stratification, zoning, deaeration and neutral point creation.

NRG Zone standard manifolds are often incorrectly perceived as suitable only for domestic installations or smaller light commercial applications, but the same technical principles can be applied to larger commercial and industrial applications. As an example, standard manifolds can for be used to sub-zone remote areas away from a central larger central boiler facility.

3.0 NRG Zone Features & Advantages

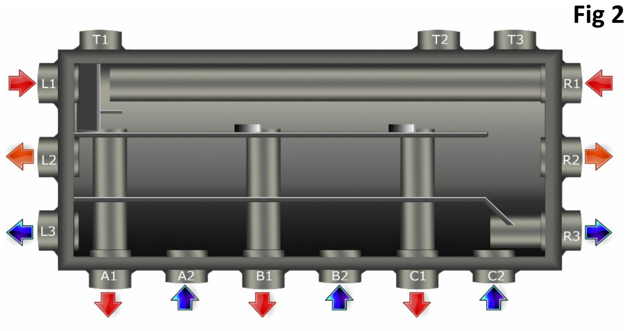
High Flow Capacity: The energy-carrying capacity of the standard manifold (NRG Zone 4, 5 & 6) is greater than one would imagine as the cross-sectional area of each internal chamber is about equal to 2 1/2" (65mm) Flow & Return headers

Simplified System Design: Figures 2 and 3 show examples of how an NRG Zone could be used to collect heat from single or multiple appliances for distribution in single or multi-zone applications. The 'Flow' & 'Return' connections beneath the NRG Zone are set out consecutively, from left to right across the unit, making it significantly easier to follow the layout of even the most complex systems (Fig 17). The NRG Zone method eliminates the need for complex pipework with motorised zoning valve configurations along with their associated flow rate conflicts and system wiring complications.

Unique Return Chamber: The third chamber and its additional connection ports to the coolest system water highlights a difference from other hydronic separators or low loss headers and manifolds. It adds greater versatility and improved system performance and efficiencies over other system methods.

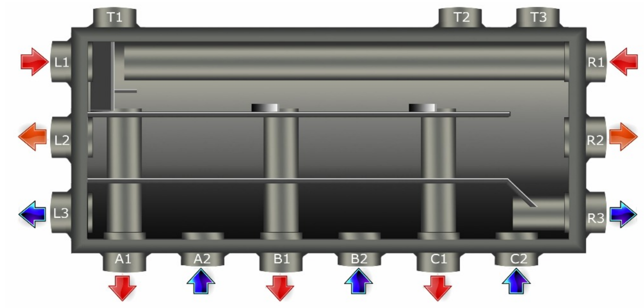
Safety: NRG Zone is one of the safest system design methods available as all of the waterways allow an open flow path to appliances, zones and system filling devices as well as unobstructed routes to all safety and expansion facilities.

Fig 2



Heat out from bottom connections

Fig 3



Heat out from side connections

Stratification: The unit creates three separate heat stratified water chambers using integral baffles to eliminate trouble-some inter-zone flow activity and interconnection conflicts between connected appliances. The chambers promote an enhanced temperature stratification effect inside the manifold as boiler efficiencies rely on optimal temperature differentials (ΔT) through their heat exchangers. In operation, the hottest flow chamber water is directed to the zones and the coolest temperature water is directed back to the appliances . Cooler returns positively impact the performance and running costs of condensing boilers and heat pump system.

Neutral Point: By design, the systems neutral point within the manifold is a very simple way to have hydraulic separation between the various system components. It is also the safest and optimal place for connecting to any expansion vessels, safety valves, filling equipment or other system devices.

Simplified System Fault-finding: NRG Zone is a considerable improvement over a standard system approach because all the crucial system flow information is available at the manifold by simple touch or the use of test equipment. The different chamber areas make it easier to follow the internal fluid activity for system balancing and fault-finding the boiler and zone circuits

Gravity Fed Systems: NRG Zone is particularly useful in the installation and interconnection of solid fuel appliances because the unobstructed water flow paths are perfectly suited to open gravity-fed primary circuits with direct access to all of the system safety and heat leak equipment. (See Section 10)

Pre-Insulation: Standard manifolds (NRG Zone 4, 5 & 6) are pre-insulated to reduce heat losses. **Note:** *The top, bottom, back and side insulation section should be fitted to the manifold before it is mounted on the wall as it is very difficult to fit later.*

Chemical dosing: If all of the ports are valved off, then a lower spare port can have a drain valve, allowing port T1, T2 or T3 to be used as a chemical dosing pot to introduce additives directly into the manifold at the core of the system.

4.0 Manifold Chambers

NRG Zone's integral chambers play a vital role in how the system works. The innovative three chamber approach allows NRG Zone to facilitate both high and low-temperature boilers, operating independently or in tandem, as the manifold chambers segregate the different return water for each boiler type.

The ' Top Chamber' is where the hotter water collects from appliance flow inputs. In the conventional NRG Zone piping arrangement, (Fig 2) the unit merges the different appliance flow-inputs into a ' left to right' direction. The various zoned circuits 'flows' are also distributed from this chamber.

The ' Bottom Chamber' is a great improvement over other heating manifolds or hydraulic separators as it isolates the coolest returning system water after it has delivered its heat energy to the zones. This cooler system water returning from the zones is invariably the optimal temperature required to enhance the efficiency of condensing boilers or heat pumps.

The ' Middle Chamber' is where any surplus heated water flow, having passed through the top chamber will mix with the required portion of the zone return water from the bottom chamber to replenish the high temperature boiler circuit's return volume. This mixed temperature water is perfect for return temperatures above conventional boiler flue 'dew-point'. Higher temperature return water minimises the risk of condensation forming in boilers such as in conventional oil or gas, solid fuel, pellet and wood chip appliances that would otherwise lead to consequential corrosion in the combustion chamber.

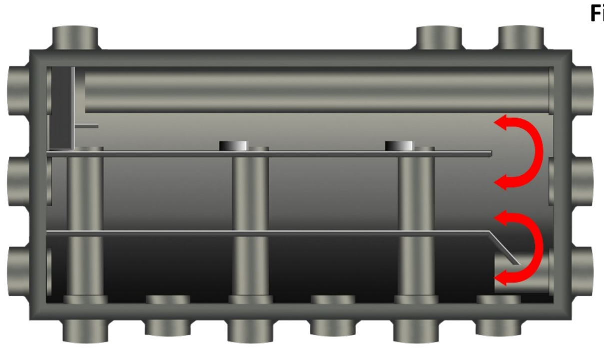
Note: *If the system does not include a low-temperature appliance, then L3 and R3 at the bottom sides should be used as the return connection to any high-temperature boiler(s).*

5.0 Internal (Water Flow) Activity

NRG Zone incorporates a 'Primary-secondary pumping' principle that relies on simple well-established piping strategies used for instance when two circuits intercept each other to form the piping common to all circuits within the manifold (see Fig-4). The flow in one circuit then has no impact on the flow in any other if there is no pressure drop in their common flow pipe.

The very low resistance through the area of the chambers and the common bypass that they share also results in an exceptionally high degree of hydraulic separation between the boiler and zone circuits.

Fig 4

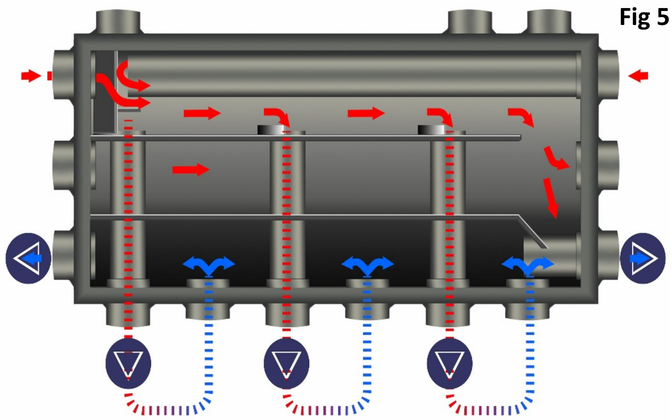


In effect, the manifold forms the system's 'neutral-point' in the bypass area at the right hand side of the internal baffles that counteracts each pump's forces against any other zone or appliance pump. Any extraordinary flow-related pressures or vacuums that might affect other zones will cancel each other out in that pressure-neutral area . The existence of the neutral point is a particularly useful feature when an NRG Zone is used properly to connect multiple boilers in a cascade system without the use of motorised valves, as heat does not travel to any connected boiler that is not being pumped through the unit.

By separating each boiler, NRG Zone allows them to work at their design heat delivery rate even when the secondary zone circuits flows vary. This hydraulic separation also prevents unnecessary interaction between boilers and zones, and enables simple return temperature sequencing control of each boiler.

In operation, when any zone draws water from the flow chamber, the resultant fluid void refills with the heated incoming flow from the appliance(s) providing equal access from all boiler flows to all zones connected to the flow chamber.

Fig 5



6.0 Appliance & Zone Pumps

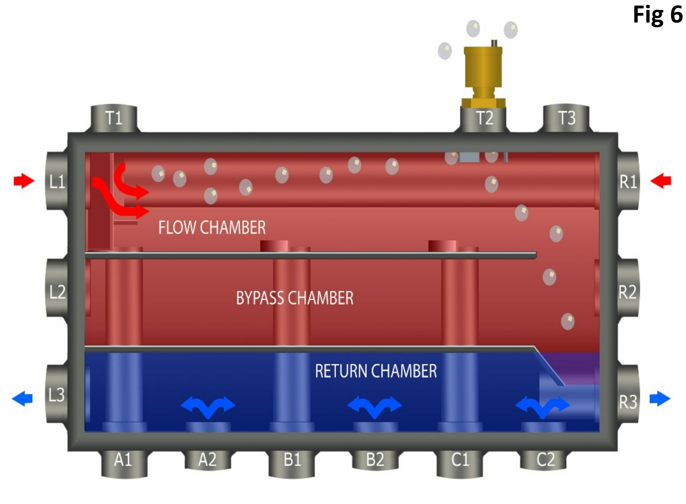
Sufficient flow in the gravity circuit is a critical factor for its safe and effective functionality. The system generally requires a pumped circuit to the manifold from the appliance(s), although some solid fuel appliances may have sufficient flow to operate effectively without an appliance pump through gravity circulation

Correct pipe and pump sizing is an indispensable factor to correctly balance the separate zones in a system. If the appliance flow-rate is not sufficient, the return water from zones will back-feed into the flow chamber which will result in a lower temperature in the affected zones. Therefore, the appliance input flow-rate to the manifold must be equal to, or greater than the combined zone flow-rate output. In simpler terms:
"You cannot take out more heat than what you put in!"

Note: *It is generally a better choice to pump 'away' from the NRG Zone because pumps work best when pumping from a system's neutral point. This means that the pumps are best located on the flow to zones and on the return to heating appliances.*

7.0 NRG Zone's De-aeration Function

Fig 6



As the flowing water moves through the larger flow chamber, its velocity reduces, and any entrained air rises to the top and into the NRG Zone's integral air trap baffle arrangement which is the unit's dedicated air vent point (T2). It is therefore always necessary to vent T2 with a manual, open or an automatic vent.

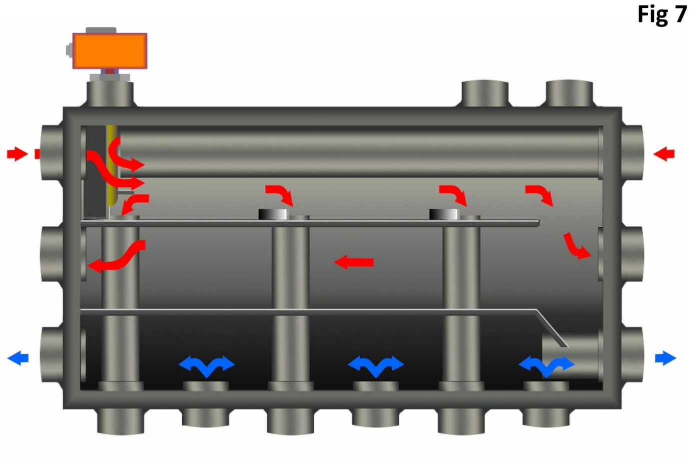
The vent at T2 may be connected directly to the unit as shown in Fig 6 or indirectly to pipework rising from the T2 connection. The connection can also form part of a zone circuit with an automatic or open vent. If T2 connects to an open vent, then it should be piped correctly to rise to a system high point, with a goose-neck bend overlooking the feed and expansion cistern.

Discharge from Vents and Safety Valves: It is worth noting that the discharge outlet from either safety valves or Automatic Air Vents (AAV) should, if possible, not be located directly above the NRG Zone unit at T2, as inadvertent leakage may go unnoticed behind the insulation and corrode the outside of the manifold.

8.0 Flow Temperature Sensing

If the system requires a temperature sensing element, Port T1 at the top left-hand corner typically has sufficient depth to accept most standard thermostat probe lengths. Fig. 7 shows an example of an immersion thermostat at T1. This is where appliance flows from ports L1, R1 and A1 converge. If a system thermostat is not necessary, T1 is available as either an appliance flow input or an outward zone port.

Fig 7



9.0 Fault-Finding

In most instances, issues with heat circulation are caused by incorrect pipe layout or sizing, pump location, air locks, defective or undersized appliances or other components.

As the NRG Zone manifold has no moving parts and its internal waterways are significantly larger than the port connections, it can generally be eliminated from consideration when the cause of any system circulation issue is being investigated.

In the event of a system circulation or heat-up fault, each appliance should be operated alone and then with any other appliance in groups together while seeking to identify the cause.

However, with so much appliance and zone-water flow and temperature information available at the fingertips as to where the various appliances and zones interconnect, it is normally quite easy to identify any heat distribution or boiler flow issues.

Caution: *Care is required when using the NRG Zone manifold as*

Fig 8

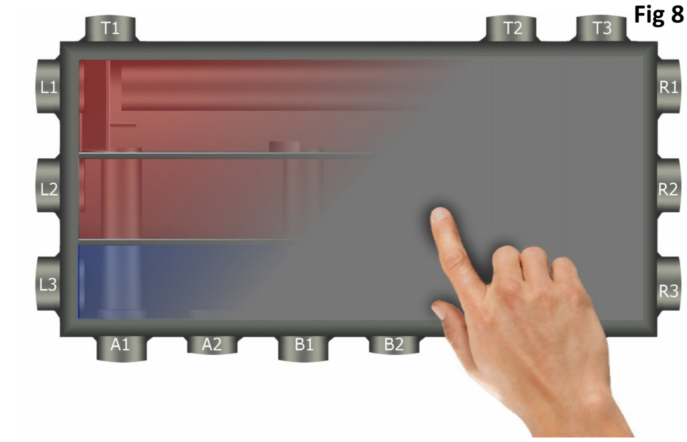


TABLE 2

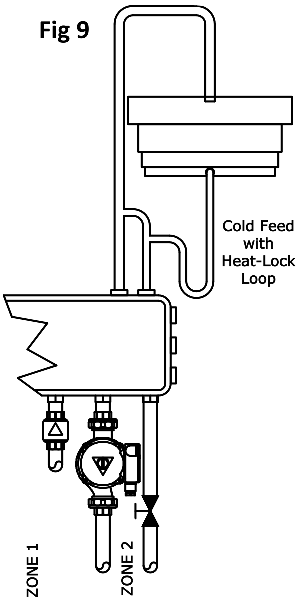
Condition	**Solution**
Return chamber is hotter than flow chamber	Appliance connections, pump or pipework reversed
Manifold not heating the entire flow chamber	Air trapped at the vent point or appliance flow rate too low
Some zone flow(s) cooler than others	Appliance flow rate too low; Undersized; appliance, appliance pump, piping or appliance circuit restriction

10.0 Open Systems General Information

The location of the feed & expansion cistern and the vent/ expansion pipe must be at the highest point in the system, and must not be affected by the location of any circulating pump.

The example in Fig 9 shows how a heat-lock loop could be formed at the NRG Zone to prevent heat drift into the expansion tank

Fig 9



The cold feed and expansion pipe can be connected separately to the manifold from connections T2 & T3. Additionally, the ‘optional’ double tee method on the cold feed and expansion is useful for **‘non-gravity-fed’** open systems, serving two functions;

1) Create a vent for the cold feed loop that feeds into the bypass chamber to the appliance.
2) Minimise any inadvertent water ‘pitching-over' to the tank from the expansion pipe as is often found to be a problem in poorly configured open systems.

This method is also useful when the height of the expansion pipe is restricted as it allows water rising in the expansion pipe to return to the T2 port and reduce the possibility of pitching.

Note: Fig 9 *is **not** suitable for solid fuel appliances that require the cold feed to connect directly to the return pipe at the appliance.*

Solid Fuel Gravity Circulation produces very little motive force and can only overcome a limited frictional resistance. As a consequence, pipe sizes on gravity circuits need to be at least (dia. 28mm - 1”) and the circuit as short and direct as possible.

When installing a solid fuel heating system, it is essential to ensure that the appliance has an unrestricted open vent and separate cold feed. It is also good practice to prevent heat rising in the cold feed pipe. That rising water would warm and evaporate the expansion tank contents causing more freshwater with oxygen to enter the system and damage the ferrous parts.

To prevent the risk of boiling in the appliance it is necessary to have an open vented heat leak DHW cylinder coil or a radiator to enable enough gravity circulation to take the heat away when the circulating pump power is interrupted or switched off.

The gravity circuit should rise upwards, without obstruction, to the heat leak and system vent before falling back to the appliance. The shorter the run of pipework, the more effective the circulation to the heat-leak. Any air pockets trapped in the gravity system can cause a dangerous situation as they will restrict or even stop the circuit and cause the boiler to overheat.

11.0 Open System Feed & Expansion Tank (Cistern)

It is essential to insulate any pipework from the manifold or boiler gravity circuit that allows heat to drift to an area where heat is not required. That is especially the case when there is a potential to inadvertently waste heat energy rising upwards in the pipework from the hot water cylinder or other DHW device.

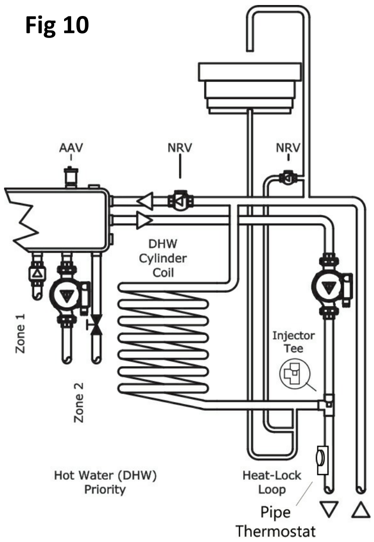
Even though an open system is safe from over-pressurisation if it has a correctly sized open vent, the provision of a gravity circuit reduces the danger of the system boiling and allows some use of the system's heat energy in the event of a power failure.

Fig 10 & 11 identify some methods that are safe and effective for solid fuel systems. A 'heat-lock' loop is used on the cold feed to stop heat drift to the expansion tank. An optional bypass link connects the cold feed to the expansion pipe, through a 'Flap type' non-return valve on a horizontal pipe run. This link reduces the possibility of over-pumping the expansion pipe. "Flap-type" NRVs are preferable to ' Spring type" in this instance as they tend to be easier to open and have less flow resistance.

12.0 Solid Fuel - Heat Leak Methods

A thermostat, set at 55°C, fixed on the gravity return circuit close to the appliance will prevent its circulator switching 'ON' before the system reaches temperature. Too low a return temperature would cause internal condensation and damage to the solid fuel fire-chamber. The same solid fuel pipe thermostat could also be fitted on the gravity flow pipe, close to the appliance and set at 65°C.

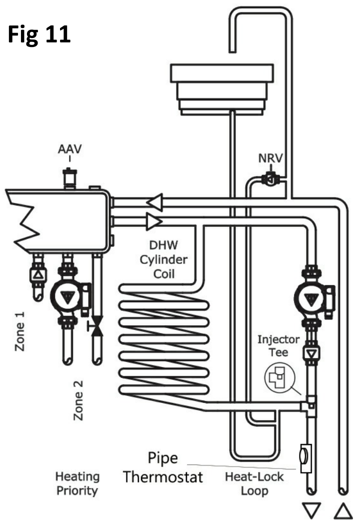
Fig 10



The setting of a pipe-thermostat on the solid fuel appliance's gravity circuit pipework determines when heat is to be distributed to the heat emitters, thereby diverting it from over-heating the heat leak device.

Option 1 (DHW Priority):
Fig 10 makes the primary circuit heat available for heating hot water in the cylinder before it reaches the NRG Zone manifold.

Fig 11

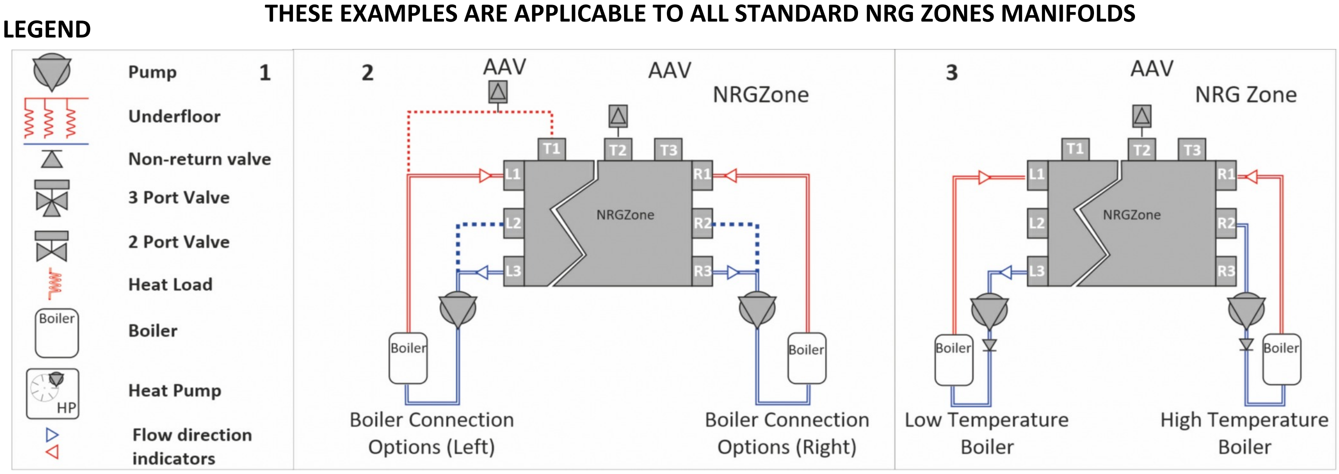


Option 2 (Heating Priority):
Fig 11 makes the primary circuit heat available for heating in the NRG Zone manifold before it heats the hot water cylinder. With this option, the flow from the solid fuel stove continuously passes through the NRG Zone, and consequently, the water temperature of the flow to the cylinder can be controlled reasonably well by using other heating zones to take the excess heat from the stove’s gravity circuit before it returns through the cylinder coil to the stove.

Both methods shown provide the pre-requisite safe primary gravity-fed heat-leak circuit through a heat leak DHW cylinder.

13.0 NRG Zone Connection Options

THESE EXAMPLES ARE APPLICABLE TO ALL STANDARD NRG ZONES MANIFOLDS



Diagrams 2 & 3 show single boiler systems connecteing an NRG Zone at L1 or R1. The boiler returns are connected at L3 or R3 respectively.

L3 or R3 show low-temperature boiler return options in solid lines. High-temperature boiler returns (dotted lines) can connect to the by-pass chamber at L2 or R2. Diagram 3 above shows where a conventional high-temperature oil or gas appliance with a return at R2, interlinks with a second low-temperature appliance with a return at L3. However, if using either one or two similar appliances, then their returns should connect to ports L3 & R3.

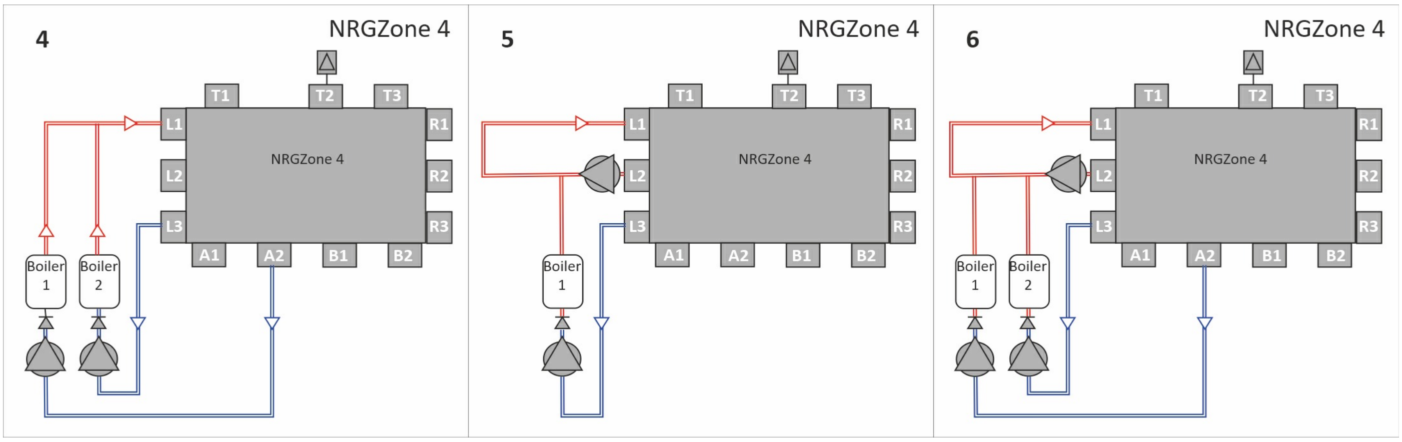


Diagram 4 above shows where boilers connect into the same flow port. That is possible when the total output from both boilers is less than or equal to the capacity of the pipe or connection port size (See Table 1) or, where only one boiler at a time is on call in a 'duty-standby' situation. Each boiler has a pump and non-return valve (NRV) to isolate it from the other.

Diagrams 5 & 6 above use a pumped primary shunt loop with a constant flow shunt pump acting through the 'Top' & 'Bypass' chambers from L2 to L1, or if required R2 & R1. This feature uniquely allows the appliances to draw their return water from the coolest zone return water, while the shunt pump acts only on the primary circuit from the flow to the bypass chamber in a loop.

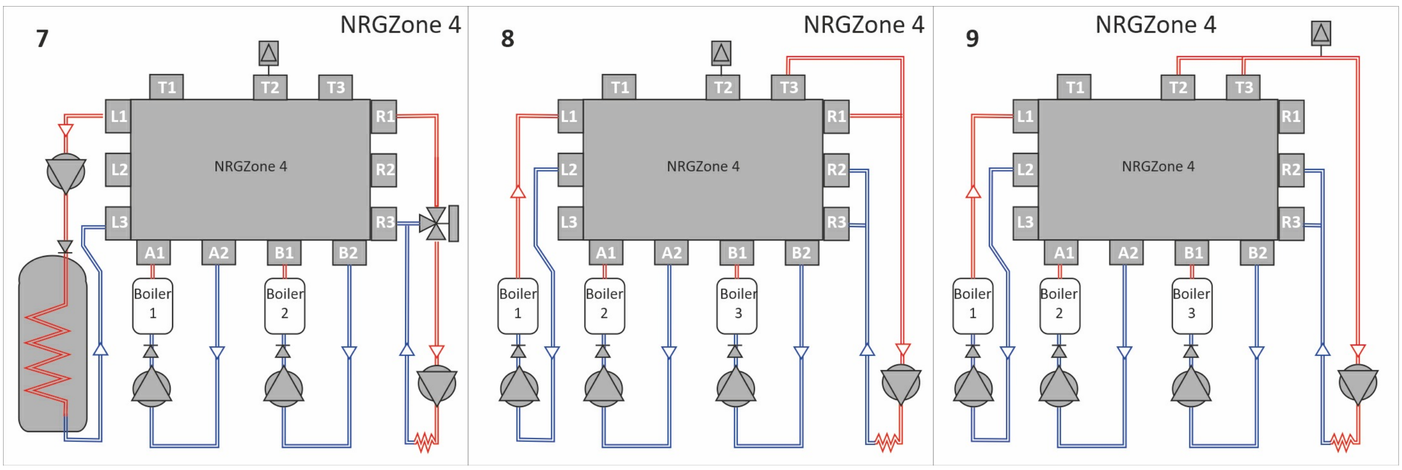


Diagram 7, 8 and 9 shows boilers connected to ports A1 - A2, B1 - B2, and so on, in the flow to return order, with the pumped flow direction reversed to have the heated flow from an appliance directed into the left-hand port of each consecutive pair which is connected directly to the 'Flow' chamber. Any remaining ports can facilitate heating zones when the flow to the zone draws from the 'Flow' chamber and returns to the 'Return' chamber; for example, Diagram 7 shows a constant-temperature zone heating the hot water cylinder on the left at L1 & L3, and a mixed temperature zone on the right at R1 & R2.
Diagrams 8 & 9 show examples of how multiple flow and return ports may combine for larger flow-rate zone outputs.

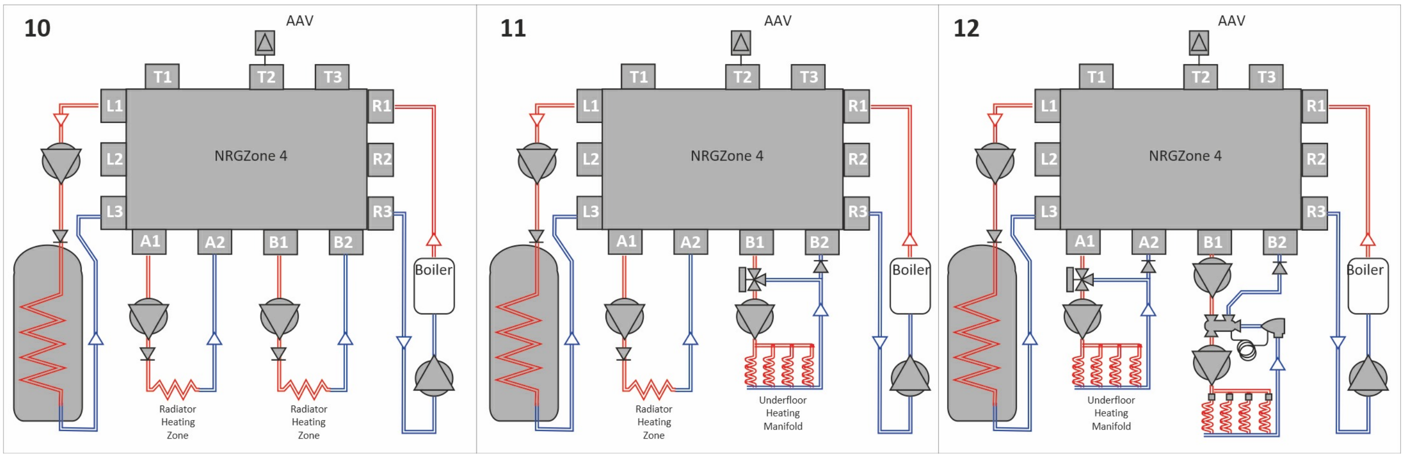
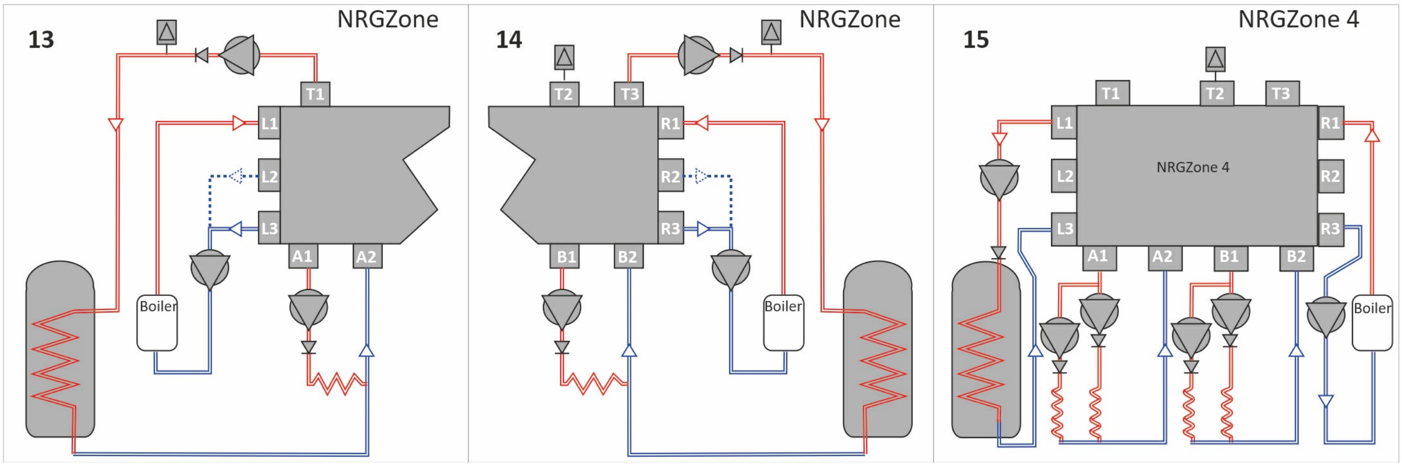


Diagram 10, 11 & 12 shows different ways to use a wet-system boiler to connect to an NRG Zone 4 forming a three-zone heating system. The boiler is locatable on the left or right-hand side of the manifold by the connections previously described. The use of any set of zone ports is at the discretion of the installer, remembering that the combined output of the zones must not exceed the input from the heat source. Any combination of flow ports and return ports to the return chamber is suitable. Therefore it is not necessary to use the return port adjacent to the particular zones flow port.

Diagram 12 shows different types of mixed temperature radiant underfloor heating manifolds; one of which uses the underfloor manifold pump alone to distribute the heat and the second requires a pump from the NRG Zone to supply the manifold pump.



Diagrams 13 & 14 shows similar examples of how multiple flows to zones, with pumps and NRV's, can share a common return connection port; In Diagram 13, the DHW circuit from T1 and the heating circuit from A1 couple in one return connection at A2. The common return principle is replicated in Diagram 14 using connection B2 as the shared return port. Joining multiple circuits on to the same set of 'flow' & 'return' ports is also achievable (Diagram 15). Circuits A1-A2 and B1-B2 each have two separately controllable zone pumps through NRV's. It is also important to note that it will most likely cost less with reduced labour to use an NRG Zone with sufficient connection ports for the project.

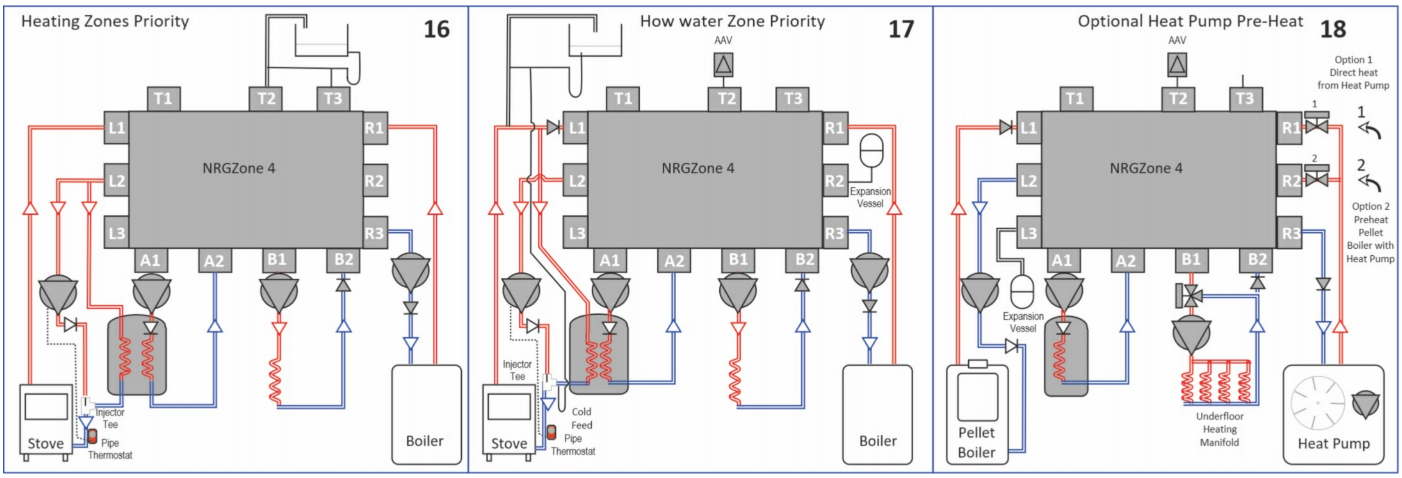


Diagram 16 above shows how the SF's heat output passes through the manifold on its primary circuit. Gravity circulation should be the only motive force from solid fuel (SF) appliances until the return water from the heat leak exceeds 55°C. Only then should a pipe thermostat allow the SF pump to energise. Therefore, the stove pump, in conjunction with any zone pumps, acts to not only distribute the heat effectively to the system but to prevent the DHW from overheating by the temperature control of the zone return water to the SF return through the operation of the SF pump. See Figure 10 & 11 on page 6 for more information.

Diagram 18 shows a heat pump with an optional feed to the flow bypass chamber to preheat a pellet boiler's return through the Option '2' motorised valve. The interaction works to supplement and increase the heat from the heat pump with the pellet boiler.

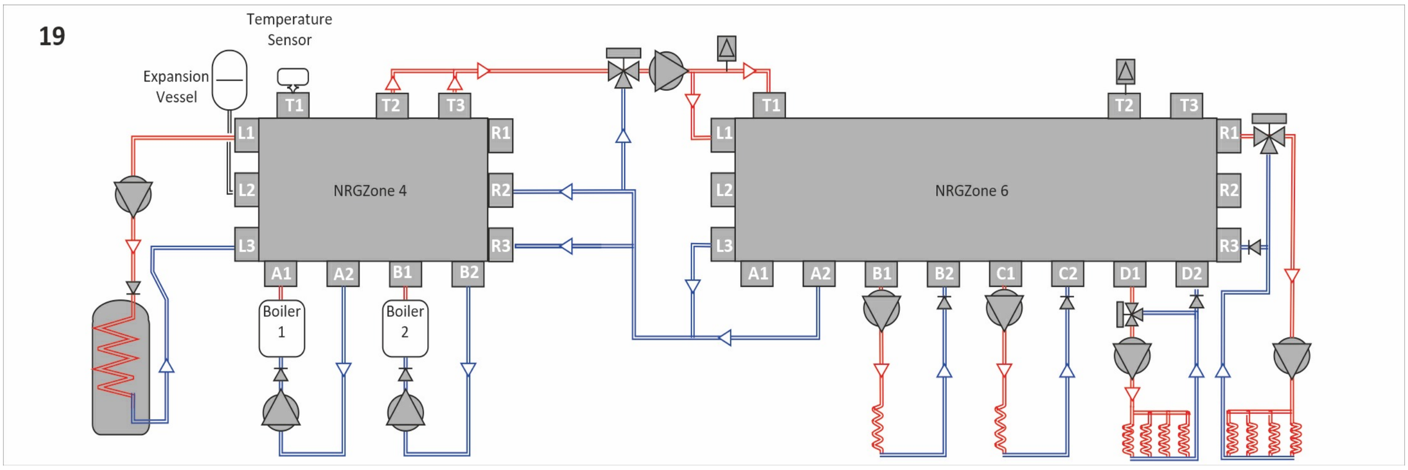
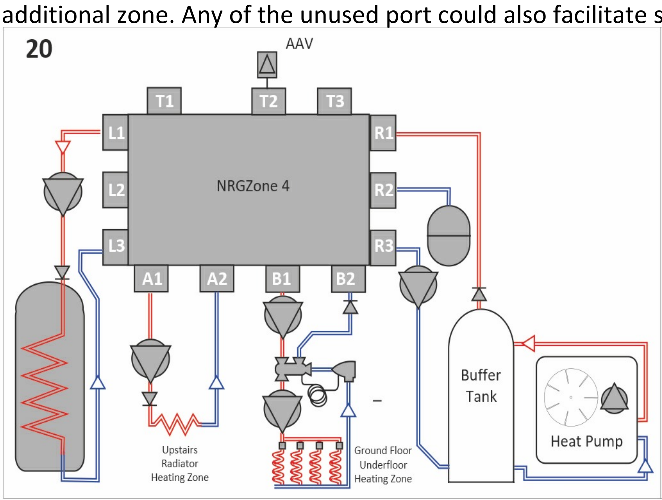


Diagram 19 shows an example of how two boilers connect beneath an NRG Zone 4 manifold with a full temperature DHW output to its left and a mixed temperature circuit to its right feeding an NRG Zone 6. The interconnecting pipework double connects to the respective units, allowing a greater flow rate between the two; where L1 & T1 combine as the flow input to the NRG Zone 6 and L3 & A2 create a common return back to the NRG Zone 4. The two radiant underfloor heating zones on the right are also controlled with additional mixing valves to further regulate their temperature outputs. The NRG Zone units still have unused ports with optional additional purposes; where for example ports T3 & A1 on the NRG Zone 6 could form an additional zone. Any of the unused port could also facilitate system filling connections if required.



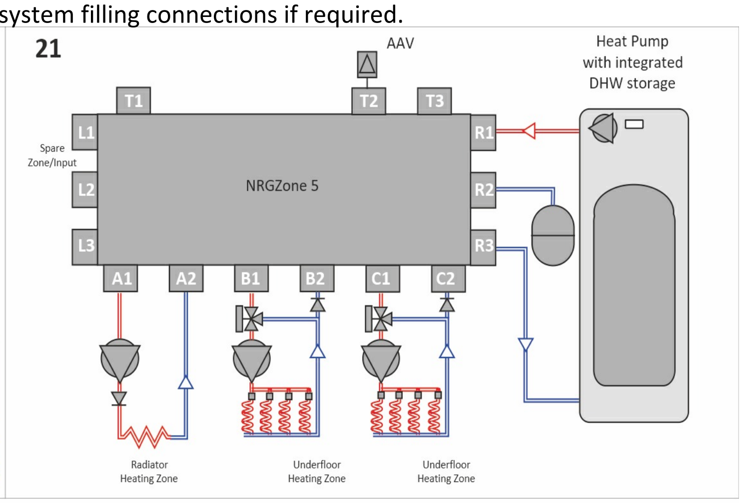
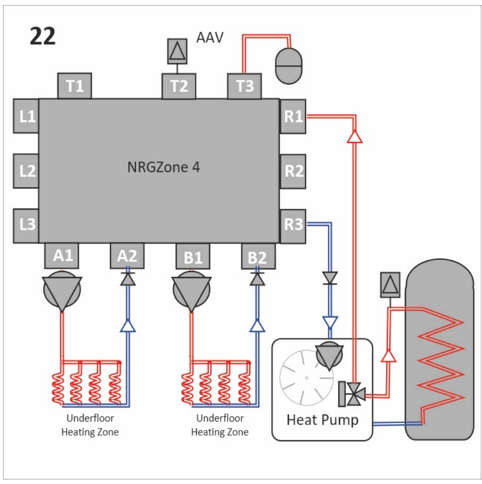


Diagram 20 shows a heat pump with a buffer connected to an NRG Zone along with 3 separate zone examples.

Diagram 21 shows a heat pump with integrated DHW located at the right of the NRG Zone. The system pressure vessel connects to R2, but the other spare connection ports are also usable.



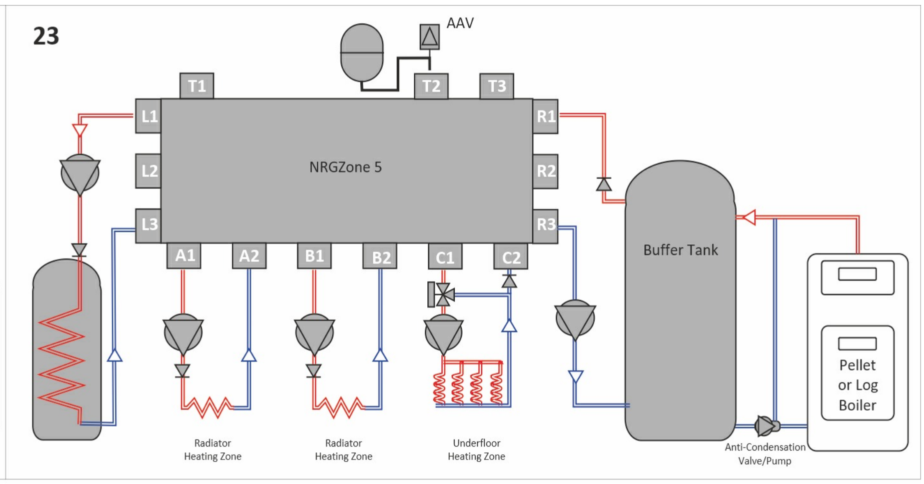


Diagram 22 has a heat pump at connections R1 and R3 but without the usual thermostatic mixing valve control for the radiant underfloor manifolds. In this instance, the heat pump has a dual temperature output with a higher setting for DHW and a controlled lower underfloor output for the underfloor eliminating the need for the mixing valves.

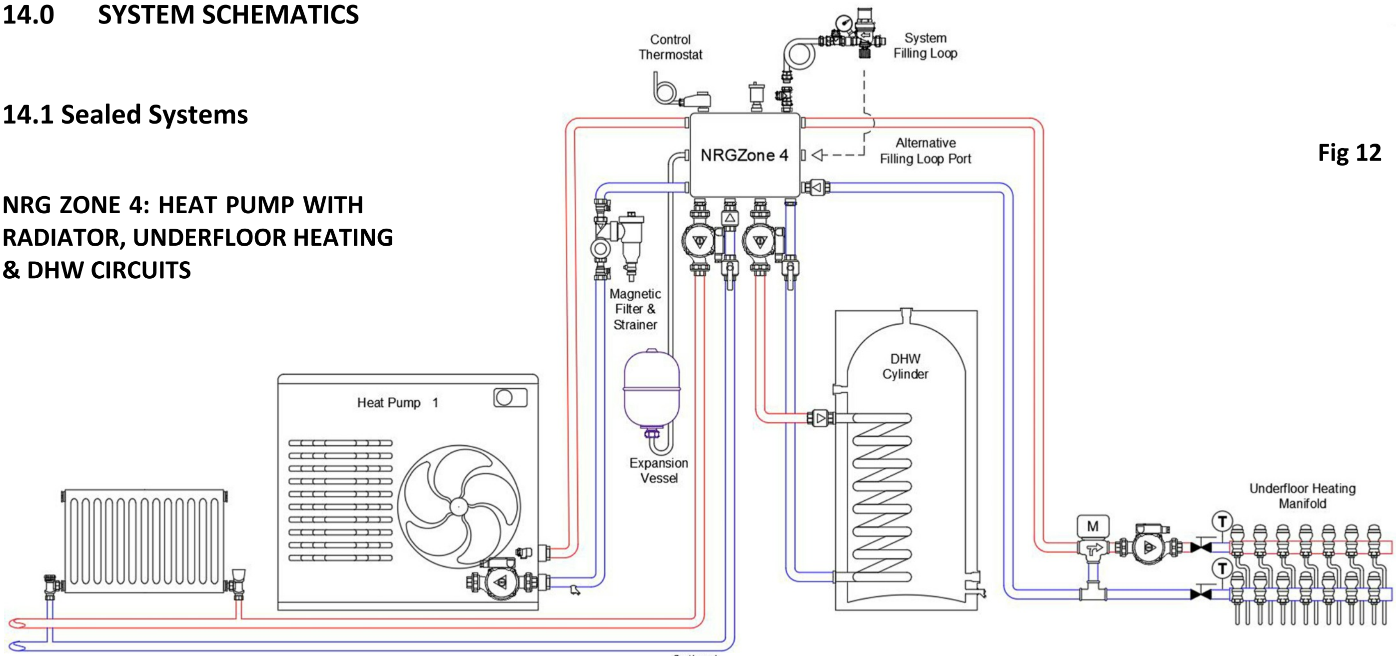
Diagram 23 shows where a high-temperature Pellet or Log boiler supplies the NRG Zone when the boilers anti-condensation valve has reached its set point and allows heat output to the buffer. Port T2 is used as a combined vent outlet and expansion vessel connection point. The NRV on the DHW coil will prevent heat back-feeding out that would result in DHW heat-loss.

14.0 SYSTEM SCHEMATICS

14.1 Sealed Systems

NRG ZONE 4: HEAT PUMP WITH RADIATOR, UNDERFLOOR HEATING & DHW CIRCUITS

Fig 12



NRG ZONE 5: 2 GAS BOILERS WITH RADIATOR, UNDERFLOOR HEATING & DHW CIRCUITS

Fig 13

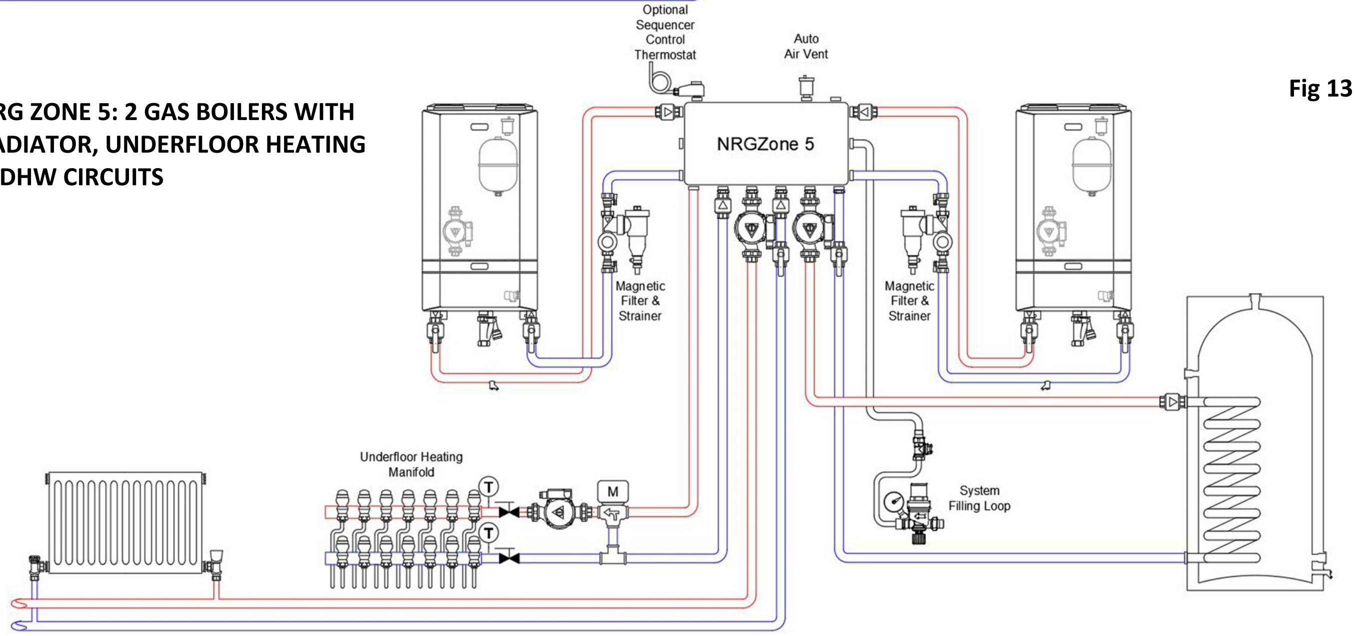
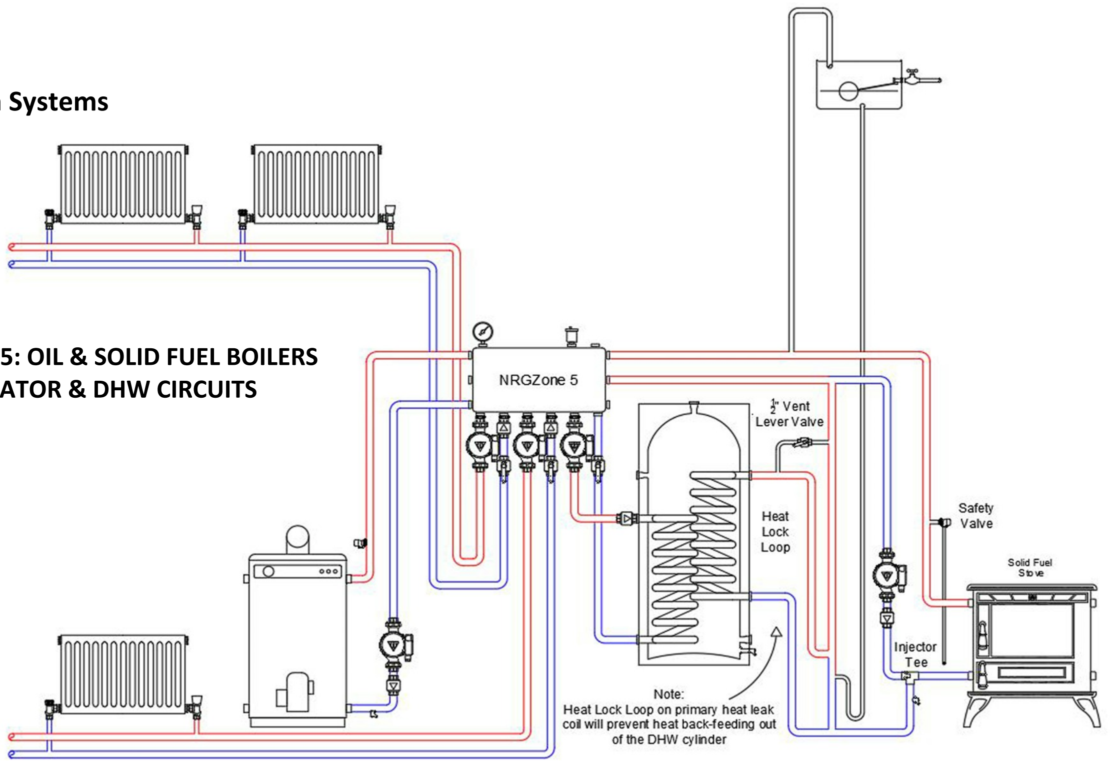


Fig 14

14.2 Open Systems

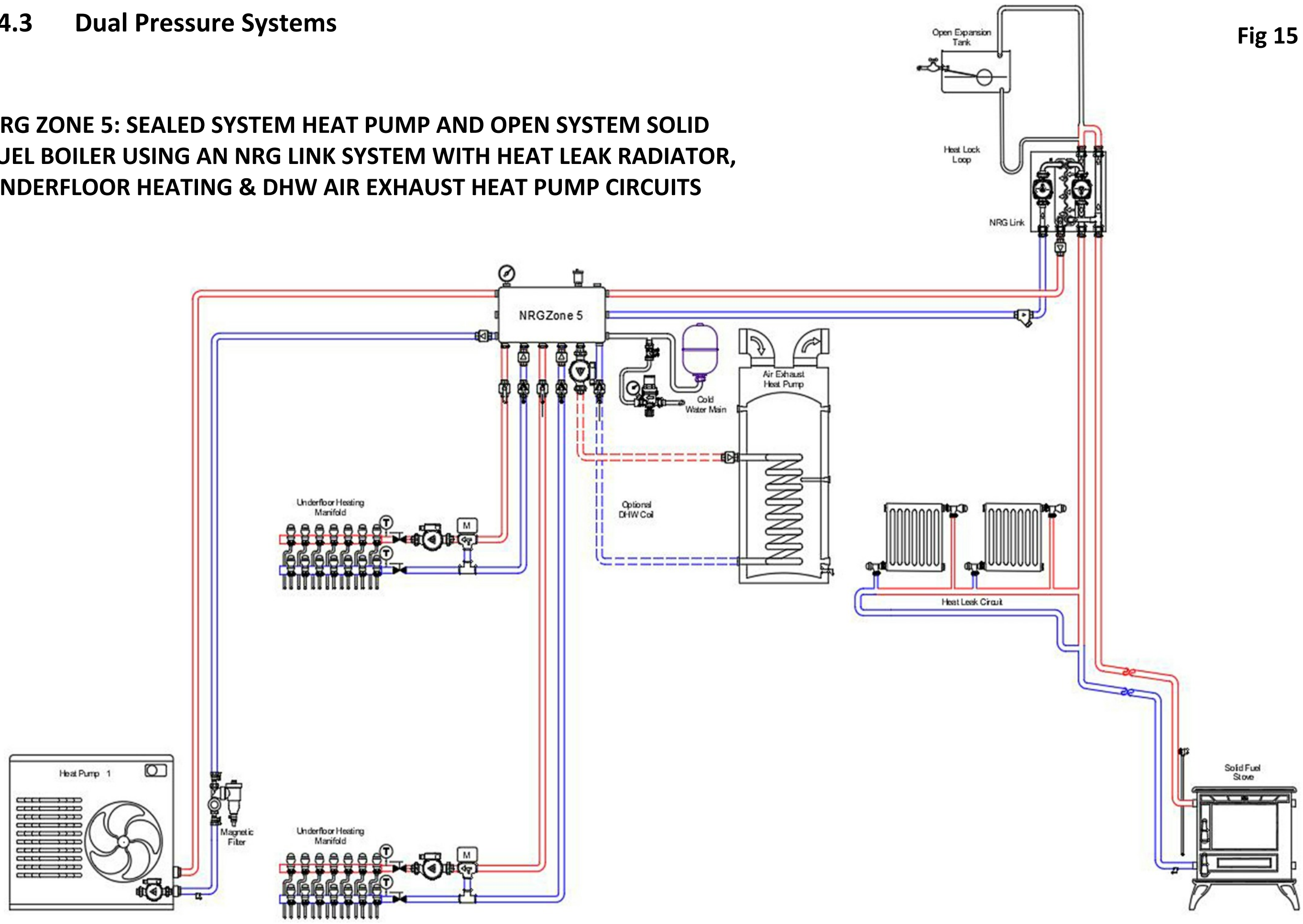
NRG ZONE 5: OIL & SOLID FUEL BOILERS WITH RADIATOR & DHW CIRCUITS



14.3 Dual Pressure Systems

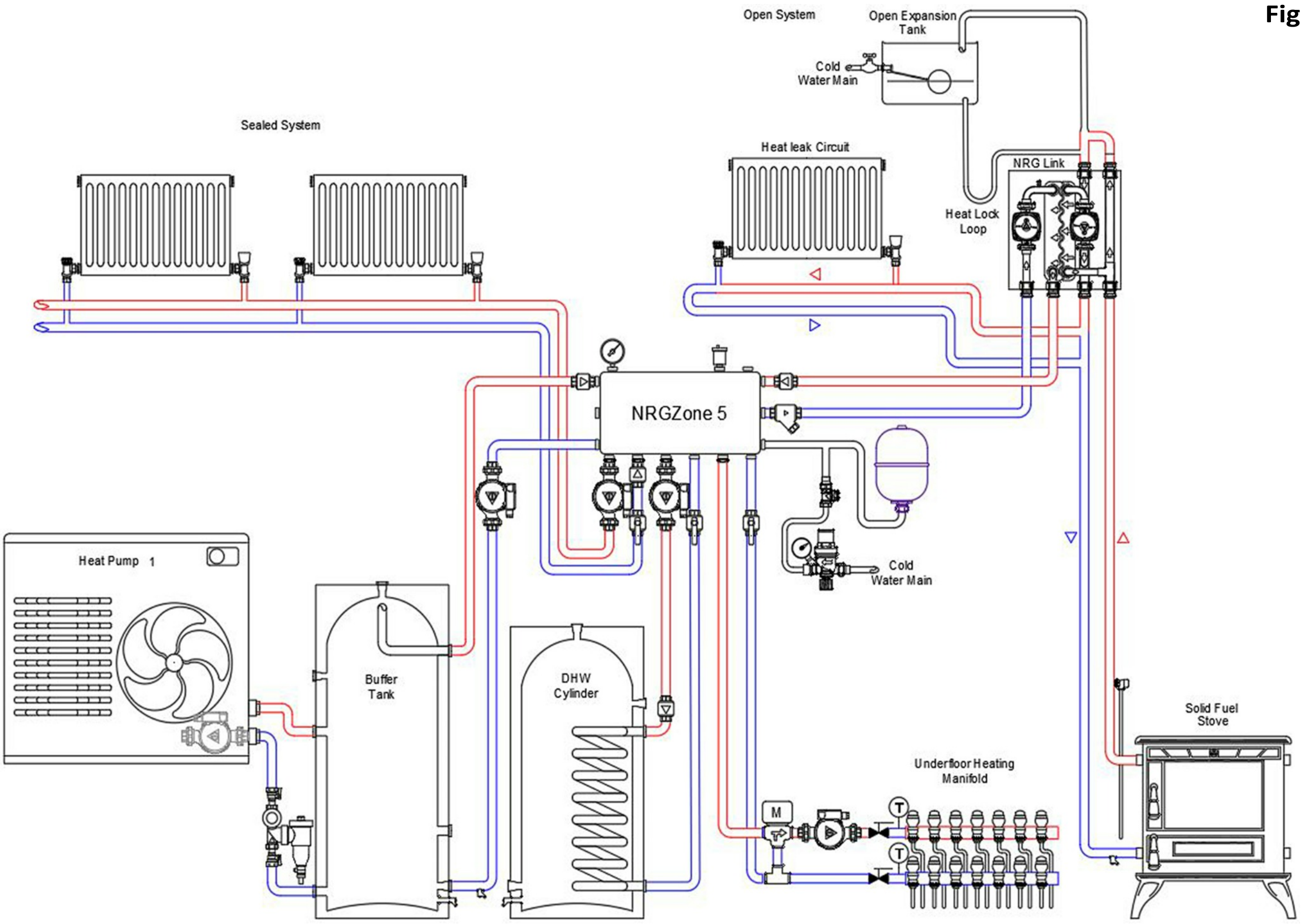
Fig 15

NRG ZONE 5: SEALED SYSTEM HEAT PUMP AND OPEN SYSTEM SOLID FUEL BOILER USING AN NRG LINK SYSTEM WITH HEAT LEAK RADIATOR, UNDERFLOOR HEATING & DHW AIR EXHAUST HEAT PUMP CIRCUITS



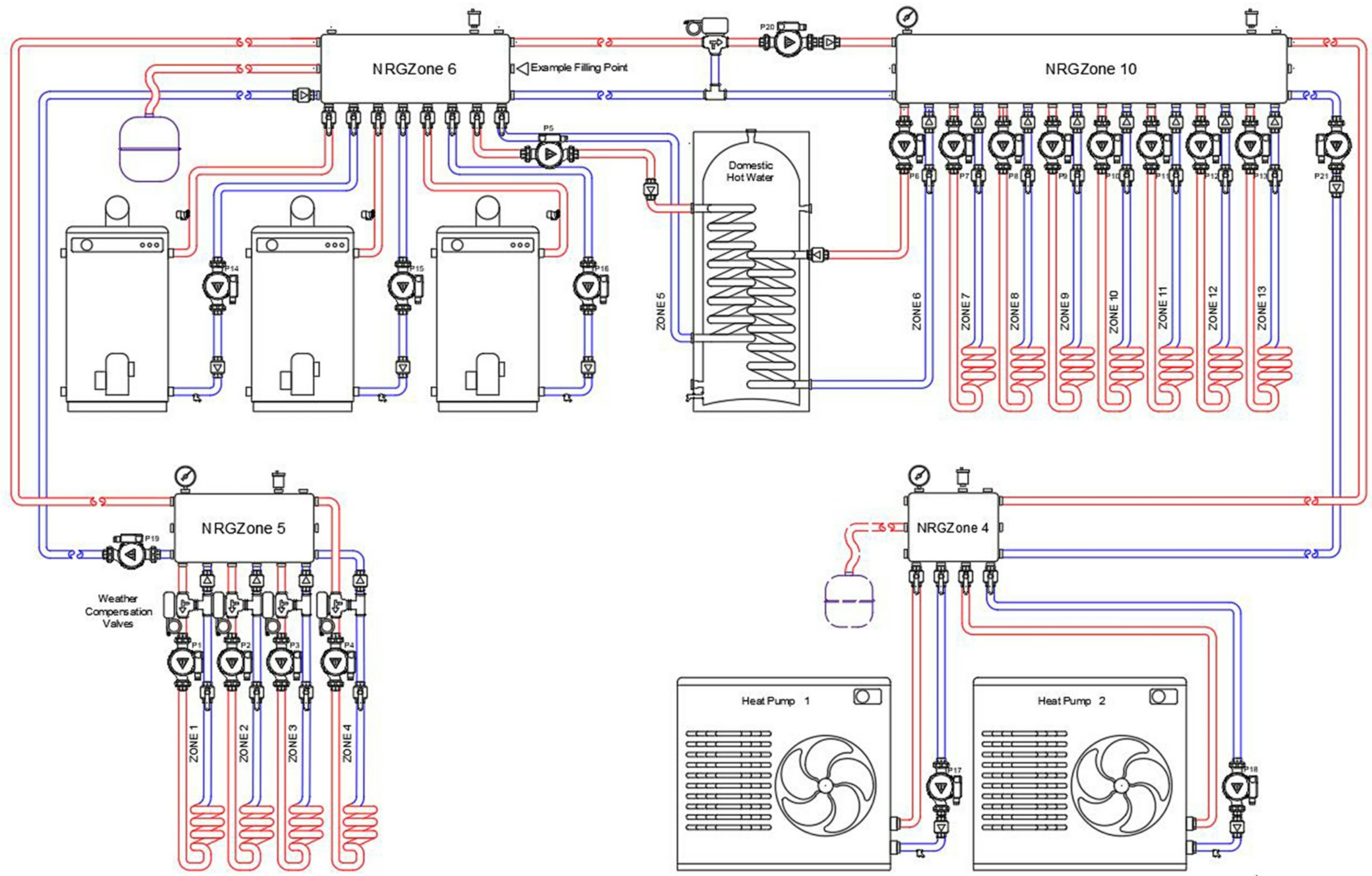
NRG ZONE 5: SEALED SYSTEM HEAT PUMP AND BUFFER TANK WITH AN OPEN SYSTEM SOLID FUEL BOILER WITH A HEAT LEAK RADIATOR USING AN NRG LINK SYSTEM WITH; RADIATOR, UNDERFLOOR HEATING & DHW CYLINDER CIRCUITS

Fig 16



15.0 Example Multi-Manifold Commercial Application

Fig 17



The example above shows how multiple boiler types with both high and low-temperature outputs can be interconnected to form a system with all output possibilities. This example of floor standing oil or gas boilers can supply both high and controlled temperatures simultaneously using the various weather compensating 3 port valves and also supply the DHW cylinder with a high-temperature feed. The low-temperature heat pumps can also supply the 10 zone NRG Zone manifold with one of its zones also providing a pre-heat feed to the DHW cylinder.

16.0 NRG Zone Technical Support

NRG Awareness offers a design service to manufacture and supply all sizes of bespoke manifolds to suit particular applications incorporating any size and amount of connection ports as required.

NRG Awareness can also provide additional control equipment and panels to deal with any system or control issues as required.

This manual is to apply in conjunction with the boiler and heat pump user and installation instructions, it gives supplementary guidance for safe and effective system design and construction. It is the responsibility of the installer to ensure that the appliances used are CE approved and properly commissioned. Failure to do so may invalidate the appliance(s) and NRG Zone guarantees.

Contact Details:

Unit 8, Little Island Industrial Estate, Little Island, Co. Cork, Ireland , T45 E289
Tel: +353 (0)21 4355728 • Email: info@nrgawareness.com

Additional Technical information and system schematic available at:
Websites: https://www.nrgawareness.com/