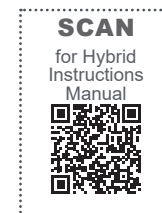
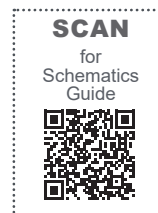




# SCHEMATICS

## HP290 MONOBLOC HEAT PUMP SYSTEM



When replacing any part on this appliance, use only spare parts that you can be assured conform to the safety and performance specification that we require. Do not use reconditioned or copy parts that have not been clearly authorised by Ideal Heating.

For the very latest copy of literature for specification and maintenance practices visit our website [idealheating.com](https://www.idealheating.com) where you can download the relevant information in PDF format.





**WEEE DIRECTIVE 2012/19/EU**  
**Waste Electrical and Electronic Equipment Directive**

- At the end of the product life, dispose of the packaging and product in a corresponding recycle centre.
- Do not dispose of the unit with the usual domestic refuse.
- Do not burn the product.
- Remove the batteries.
- Dispose of the batteries according to the local statutory requirements and not with the usual domestic refuse.



The code of practice for the installation,  
commissioning & servicing of central  
heating systems



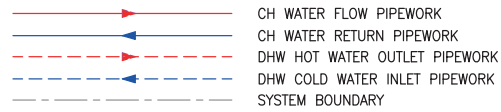
*Ideal Heating reserve the right to vary specification without notice*

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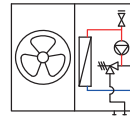
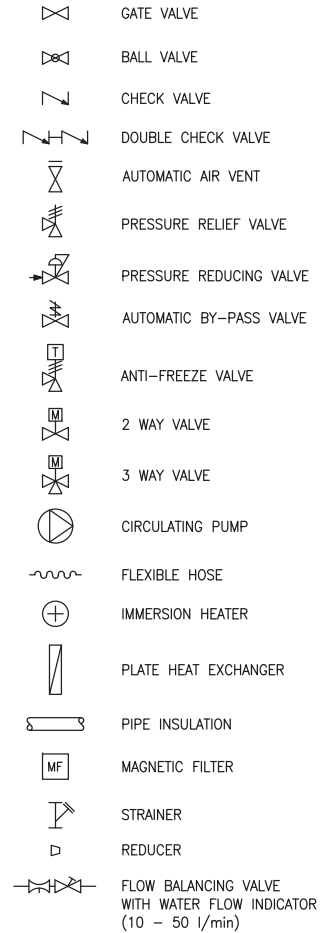
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① **IMPORTANT: PLEASE USE THIS MANUAL IN CONJUNCTION  
WITH THE HP290 MONOBLOC HEAT PUMP SYSTEM –  
INSTALLATION & SERVICING MANUAL**

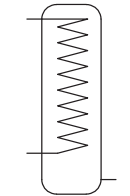
## LEGEND



## COMPONENT SYMBOLS



MONOBLOCK HEAT PUMP



INDIRECT DHW CYLINDER



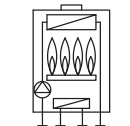
HEAT EMITTER



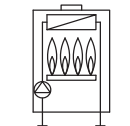
EXPANSION VESSEL



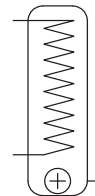
VOLUMISER



COMBINATION BOILER



SYSTEM BOILER



INDIRECT DHW CYLINDER WITH INTEGRATED BUFFER TANK



MULTI CONNECTION BUFFER TANK

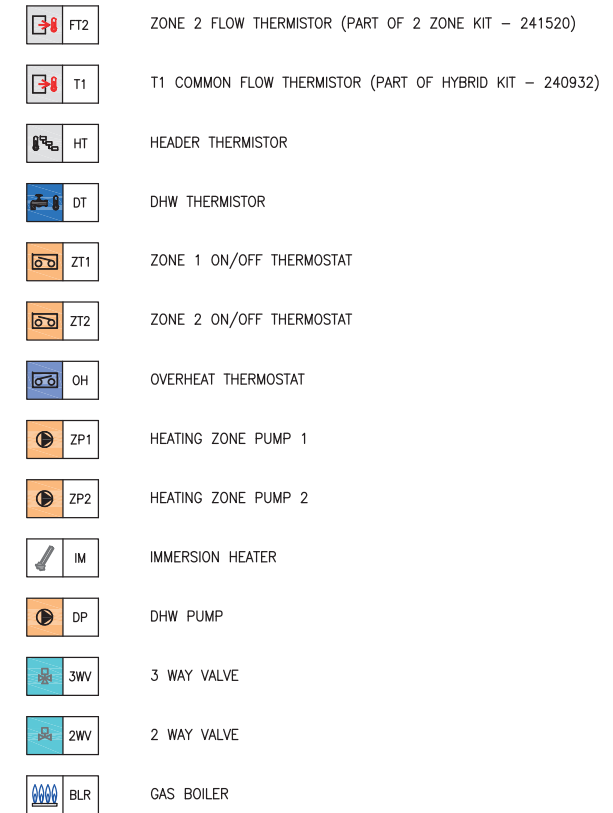


MULTI CONNECTION HYDRAULIC SEPARATOR



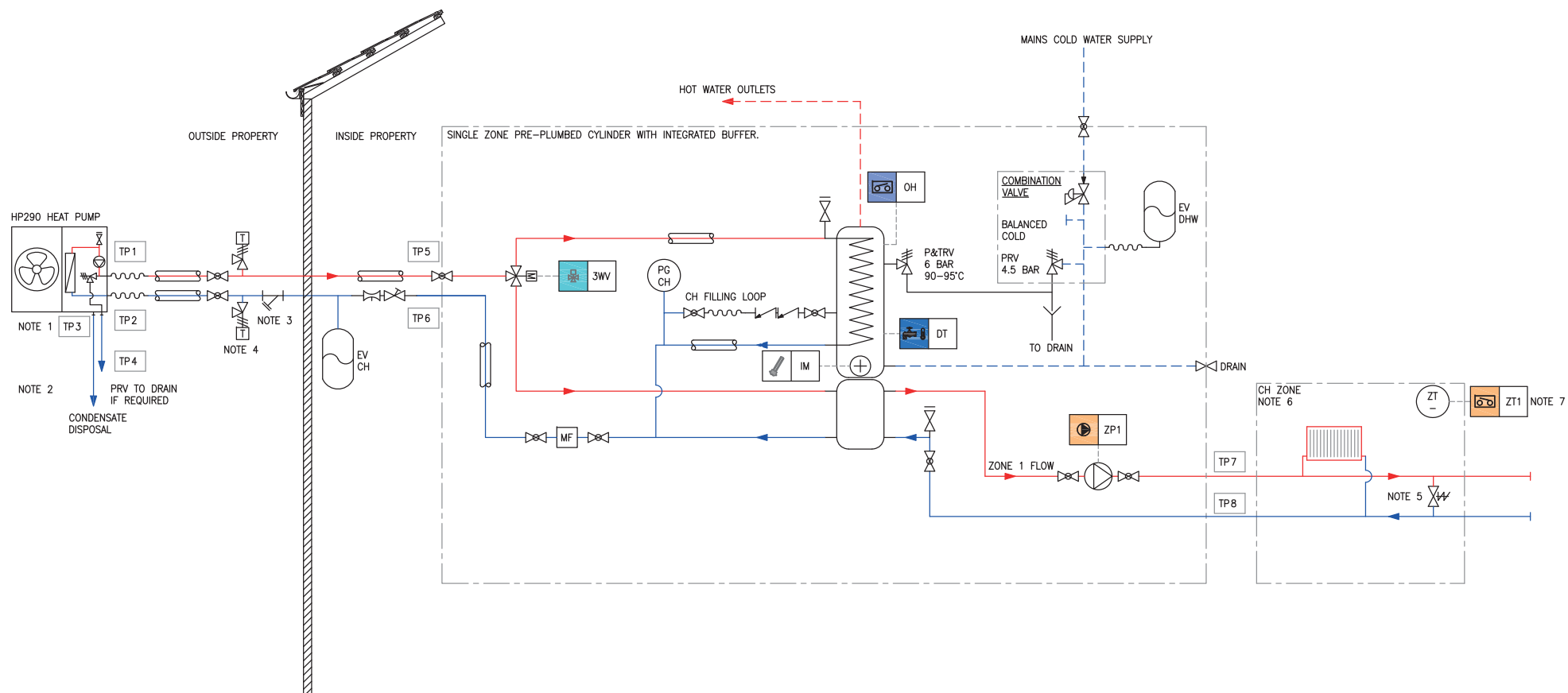
HYDRAULIC SEPARATOR

## INSTRUMENT ABBREVIATIONS (HP290 CONTROL BOX CONNECTIONS)



CONNECTION POINT LIST				
TP No	DESCRIPTION	SIZE 4.5-6kW	SIZE 8-14kW	MATERIAL
1	HEAT PUMP FLOW	1" BSP	1. 1/4" BSP	BRASS
2	HEAT PUMP RETURN	1" BSP	1. 1/4" BSP	BRASS
3	HEAT PUMP CONDENSATE DISPOSAL	32MM OD	32MM OD	PLASTIC
4	PRESSURE RELIEF VALVE (PRV)	9MM ID	9MM ID	PVC
5	CYLINDER HEAT PUMP FLOW	28MM	28MM	BRASS
6	CYLINDER HEAT PUMP RETURN	28MM	28MM	BRASS
7	ZONE 1 FLOW	28MM	28MM	BRASS
8	ZONE 1 RETURN	28MM	28MM	BRASS

## HP290 + Single Zone Pre-plumbed Cylinder with Integrated Buffer.



### Notes.

- Note 1. The heat pump must be installed on a secure level base capable of supporting its weight.  
 Note 2. Refer to the installation manual for condensate and pressure relief discharge requirements.  
 Note 3. A particle filter can be supplied as an option and it's recommended that a magnetic filter is installed. Pre-plumbed cylinders are supplied complete with a combined magnetic and particle filter.  
 Note 4. Anti-freeze valves are required if glycol is not used in the system.  
 Note 5. Install an auto-bypass if no permanent open circuit is available to allow secondary side pump overrun and normal operation.  
 Note 6. Two zone pre-plumbed arrangement is available.  
 Note 7. Refer to the installation manual for thermostat connection.  
 Note 8. Flow, return and outdoor sensors are integrated within the outdoor unit.

This drawing is for information and guidance only. It is the heating designer/ installers responsibility to adhere to the latest relevant standards.

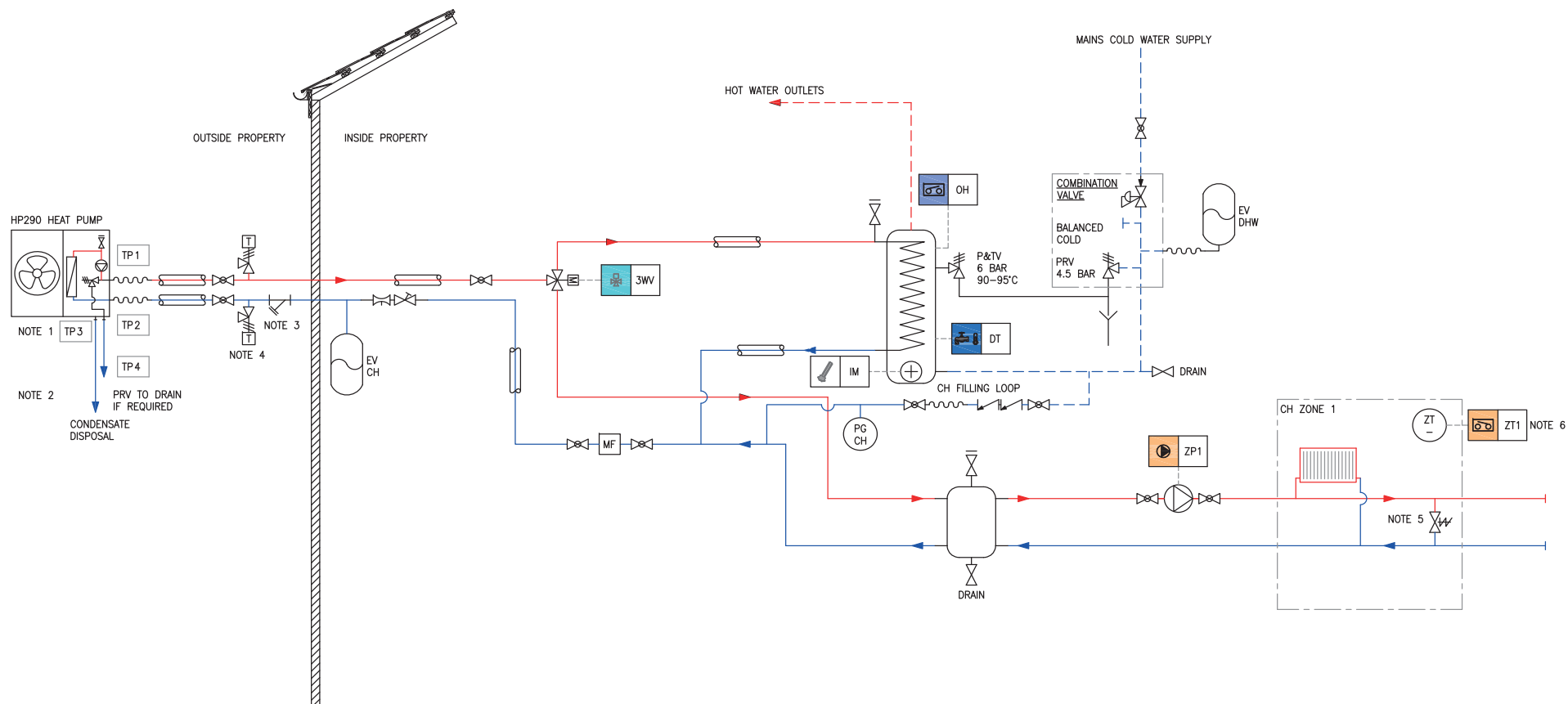
Refer to HP290 heat pump system installation and maintenance manual in conjunction with these schematic drawings.

Figure 2. HP290 + Single Zone Pre-plumbed Cylinder with Integrated Buffer



CONNECTION POINT LIST					
TP No	DESCRIPTION	SIZE 4.5-6kW	SIZE 8-14kW	MATERIAL	TYPE
1	HEAT PUMP FLOW	1" BSP	1. 1/4" BSP	BRASS	BSP MALE
2	HEAT PUMP RETURN	1" BSP	1. 1/4" BSP	BRASS	BSP MALE
3	HEAT PUMP CONDENSATE DISPOSAL	32MM OD	32MM OD	PLASTIC	BARBED SPIGOT
4	PRESSURE RELIEF VALVE (PRV)	9MM ID	9MM ID	PVC	HOSE

## HP290 + Standard Non Pre-plumbed Heat Pump Cylinder + Buffer with Single Zone.



### Notes.

- Note 1. The heat pump must be installed on a secure level base capable of supporting its weight.  
 Note 2. Refer to the installation manual for condensate and pressure relief discharge requirements.  
 Note 3. A particle filter is required and can be supplied as an option. It's recommended that a magnetic filter is installed.  
 Note 4. Anti-freeze valves are required if glycol is not used in the system.  
 Note 5. Install an auto-bypass if no permanent open circuit is available to allow secondary side pump overrun and normal operation.  
 Note 6. Refer to the installation manual for thermostat connection.  
 Note 7. Flow, return and outdoor sensors are integrated within the outdoor unit.

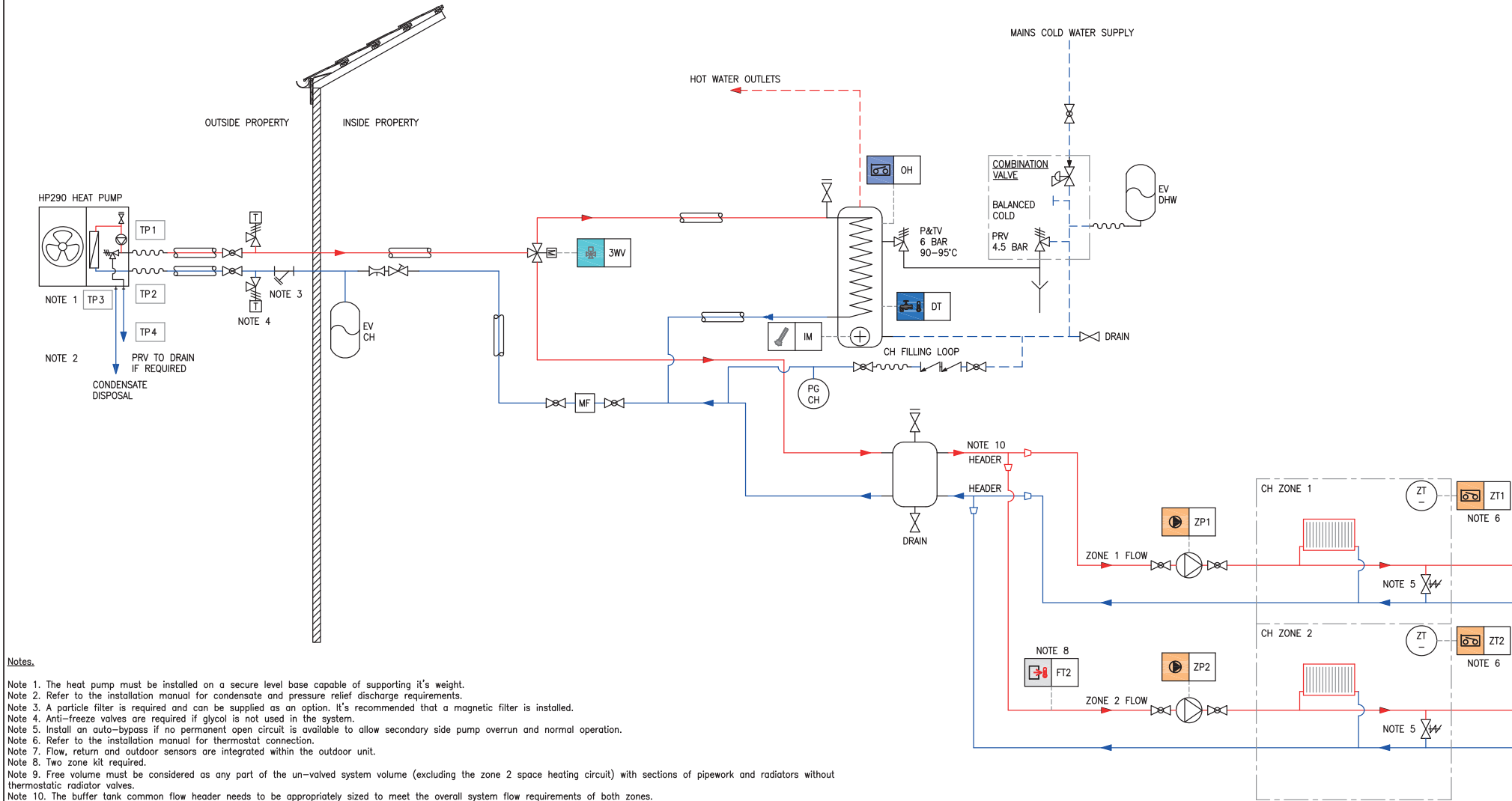
This drawing is for information and guidance only. It is the heating designer/installers responsibility to adhere to the latest relevant standards.

Refer to HP290 heat pump system installation and maintenance manual in conjunction with these schematic drawings.

Figure 4. HP290 + Standard Non Pre-plumbed Heat Pump Cylinder + Buffer with Single Zone

CONNECTION POINT LIST					
TP No	DESCRIPTION	SIZE 4.5-6kW	SIZE 8-14kW	MATERIAL	TYPE
1	HEAT PUMP FLOW	1" BSP	1. 1/4" BSP	BRASS	BSP MALE
2	HEAT PUMP RETURN	1" BSP	1. 1/4" BSP	BRASS	BSP MALE
3	HEAT PUMP CONDENSATE DISPOSAL	32MM OD	32MM OD	PLASTIC	BARBED SPIGOT
4	PRESSURE RELIEF VALVE (PRV)	9MM ID	9MM ID	PVC	HOSE

# HP290 + Standard Non Pre-plumbed Heat Pump Cylinder + Buffer with Two Zones.



## Notes.

- Note 1. The heat pump must be installed on a secure level base capable of supporting its weight.
- Note 2. Refer to the installation manual for condensate and pressure relief discharge requirements.
- Note 3. A particle filter is required and can be supplied as an option. It's recommended that a magnetic filter is installed.
- Note 4. Anti-freeze valves are required if glycol is not used in the system.
- Note 5. Install an auto-bypass if no permanent open circuit is available to allow secondary side pump overrun and normal operation.
- Note 6. Refer to the installation manual for thermostat connection.
- Note 7. Flow, return and outdoor sensors are integrated within the outdoor unit.
- Note 8. Two zone kit required.
- Note 9. Free volume must be considered as any part of the un-valved system volume (excluding the zone 2 space heating circuit) with sections of pipework and radiators without thermostatic radiator valves.
- Note 10. The buffer tank common flow header needs to be appropriately sized to meet the overall system flow requirements of both zones. Make sure both zones are balanced.

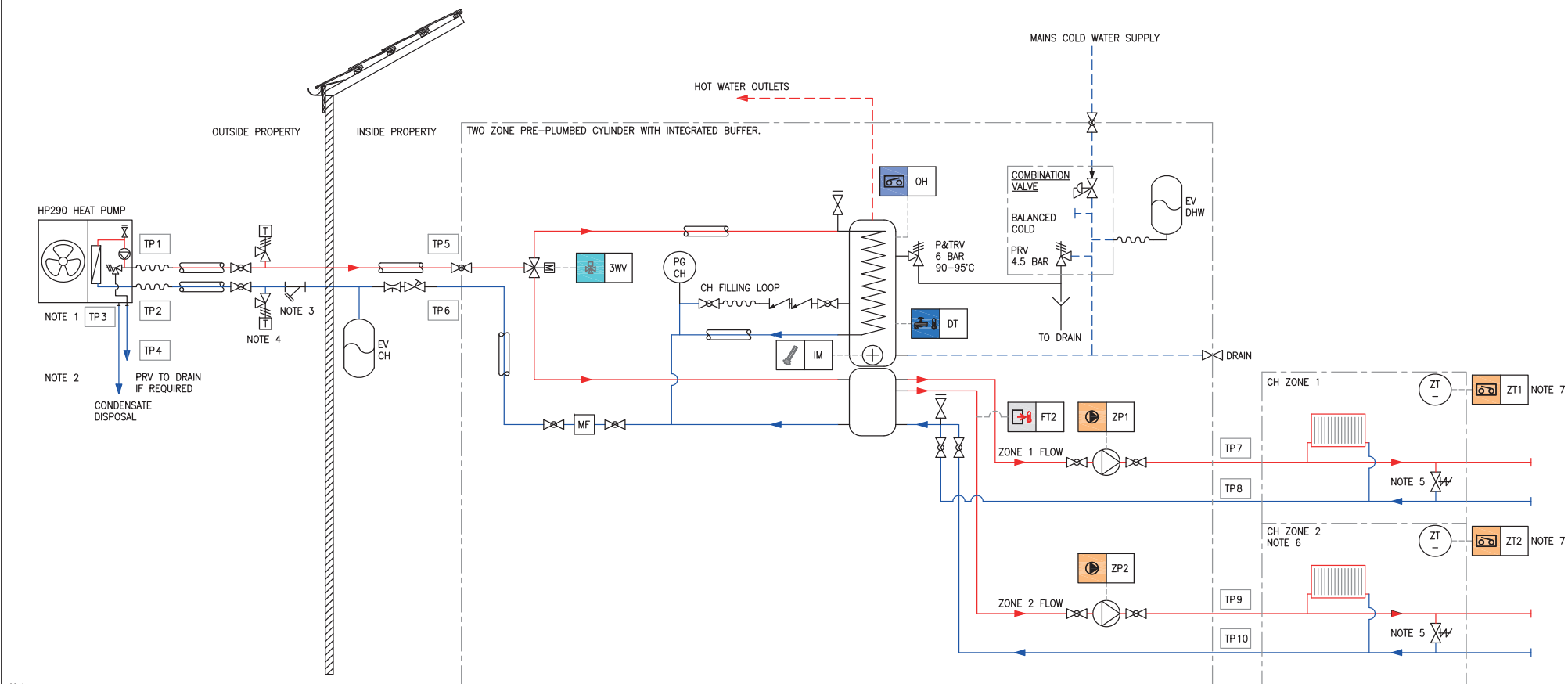
This drawing is for information and guidance only. It is the heating designer/installers responsibility to adhere to the latest relevant standards.  
Refer to HP290 heat pump system installation and maintenance manual in conjunction with these schematic drawings.

Figure 5. HP290 + Standard Non Pre-plumbed Heat Pump Cylinder + Buffer with Two Zones



CONNECTION POINT LIST					
TP No	DESCRIPTION	SIZE 4.5-6kW	SIZE 8-14kW	MATERIAL	TYPE
1	HEAT PUMP FLOW	1" BSP	1. 1/4" BSP	BRASS	BSP MALE
2	HEAT PUMP RETURN	1" BSP	1. 1/4" BSP	BRASS	BSP MALE
3	HEAT PUMP CONDENSATE DISPOSAL	32MM OD	32MM OD	PLASTIC	BARBED SPIGOT
4	PRESSURE RELIEF VALVE (PRV)	9MM ID	9MM ID	PVC	HOSE
5	CYLINDER HEAT PUMP FLOW	28MM	28MM	BRASS	COMPRESSION
6	CYLINDER HEAT PUMP RETURN	28MM	28MM	BRASS	COMPRESSION
7	ZONE 1 FLOW	28MM	28MM	BRASS	COMPRESSION
8	ZONE 1 RETURN	28MM	28MM	BRASS	COMPRESSION
9	ZONE 2 FLOW	28MM	28MM	BRASS	COMPRESSION
10	ZONE 2 RETURN	28MM	28MM	BRASS	COMPRESSION

## HP290 + Two Zone Pre-plumbed Cylinder with Integrated Buffer.



### Notes.

- Note 1. The heat pump must be installed on a secure level base capable of supporting its weight.  
 Note 2. Refer to the installation manual for condensate and pressure relief discharge requirements.  
 Note 3. A particle filter can be supplied as an option and it's recommended that a magnetic filter is installed. Pre-plumbed cylinders are supplied complete with a combined magnetic and particle filter.  
 Note 4. Anti-freeze valves are required if glycol is not used in the system.  
 Note 5. Install an auto-bypass if no permanent open circuit is available to allow secondary side pump overrun and normal operation.  
 Note 6. Single zone pre-plumbed arrangement is available.  
 Note 7. Refer to the installation manual for thermostat connection.  
 Note 8. Flow, return and outdoor sensors are integrated within the outdoor unit.  
 Note 9. Free volume must be considered as any part of the un-valved system volume (excluding the zone 2 space heating circuit) with sections of pipework and radiators without thermostatic radiator valves.

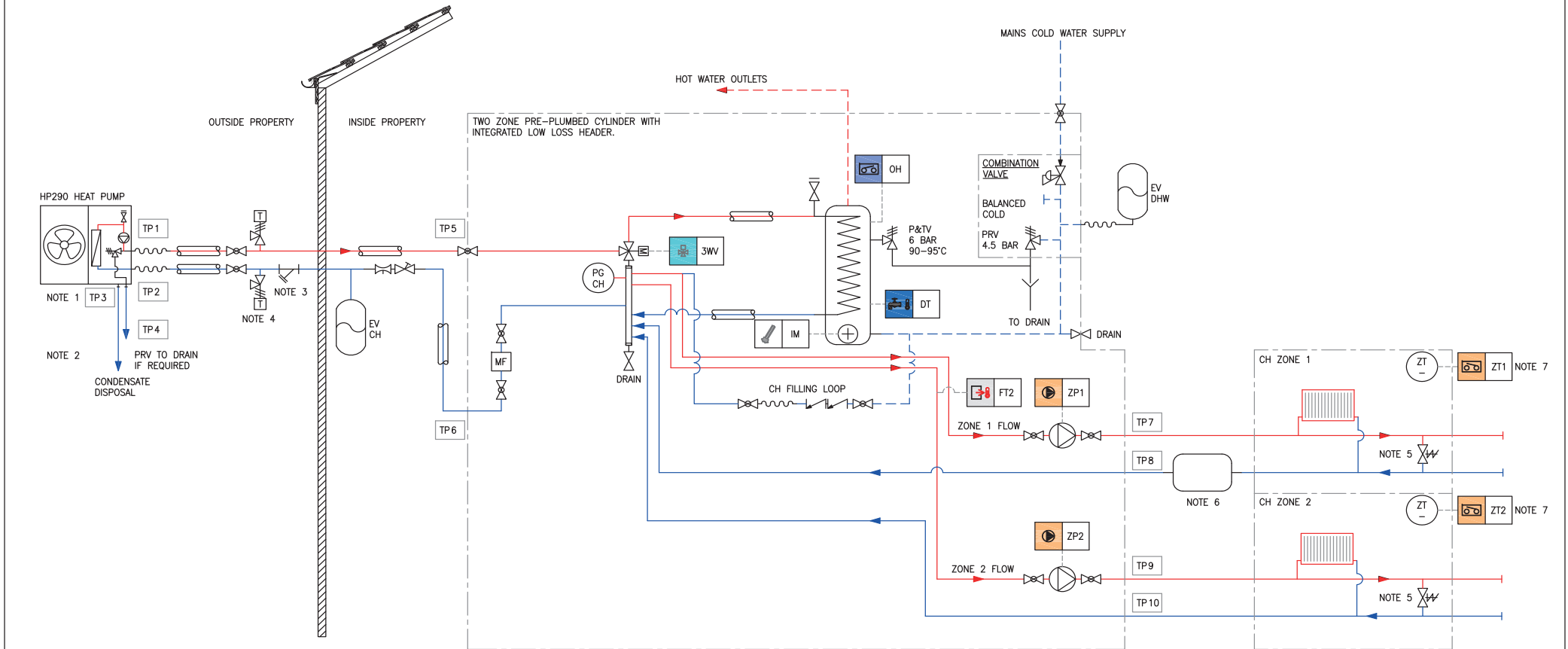
This drawing is for information and guidance only. It is the heating designer/ installers responsibility to adhere to the latest relevant standards.

Refer to HP290 heat pump system installation and maintenance manual in conjunction with these schematic drawings.

Figure 6. HP290 + Two Zone Pre-plumbed Cylinder with Integrated Buffer

CONNECTION POINT LIST					
TP No	DESCRIPTION	SIZE 4.5-6kW	SIZE 8-14kW	MATERIAL	TYPE
1	HEAT PUMP FLOW	1" BSP	1. 1/4" BSP	BRASS	BSP MALE
2	HEAT PUMP RETURN	1" BSP	1. 1/4" BSP	BRASS	BSP MALE
3	HEAT PUMP CONDENSATE DISPOSAL	32MM OD	32MM OD	PLASTIC	BARBED SPIGOT
4	PRESSURE RELIEF VALVE (PRV)	9MM ID	9MM ID	PVC	HOSE
5	CYLINDER HEAT PUMP FLOW	28MM	28MM	BRASS	COMPRESSION
6	CYLINDER HEAT PUMP RETURN	28MM	28MM	BRASS	COMPRESSION
7	ZONE 1 FLOW	28MM	28MM	BRASS	COMPRESSION
8	ZONE 1 RETURN	28MM	28MM	BRASS	COMPRESSION
9	ZONE 2 FLOW	28MM	28MM	BRASS	COMPRESSION
10	ZONE 2 RETURN	28MM	28MM	BRASS	COMPRESSION

## HP290 + Two Zone Pre-plumbed Cylinder with Integrated Low Loss Header.



### Notes.

- Note 1. The heat pump must be installed on a secure level base capable of supporting its weight.
- Note 2. Refer to the installation manual for condensate and pressure relief discharge requirements.
- Note 3. A particle filter can be supplied as an option and it's recommended that a magnetic filter is installed. Pre-plumbed cylinders are supplied complete with a combined magnetic and particle filter.
- Note 4. Anti-freeze valves are required if glycol is not used in the system.
- Note 5. Install an auto-bypass if no permanent open circuit is available to allow secondary side pump overrun and normal operation.
- Note 6. If minimum free system water volume cannot be met, a volumiser or buffer vessel is required.
- Note 7. Refer to the installation manual for thermostat connection.
- Note 8. Flow, return and outdoor sensors are integrated within the outdoor unit.
- Note 9. Free volume must be considered as any part of the un-valved system volume (excluding the zone 2 space heating circuit) with sections of pipework and radiators without thermostatic radiator valves.

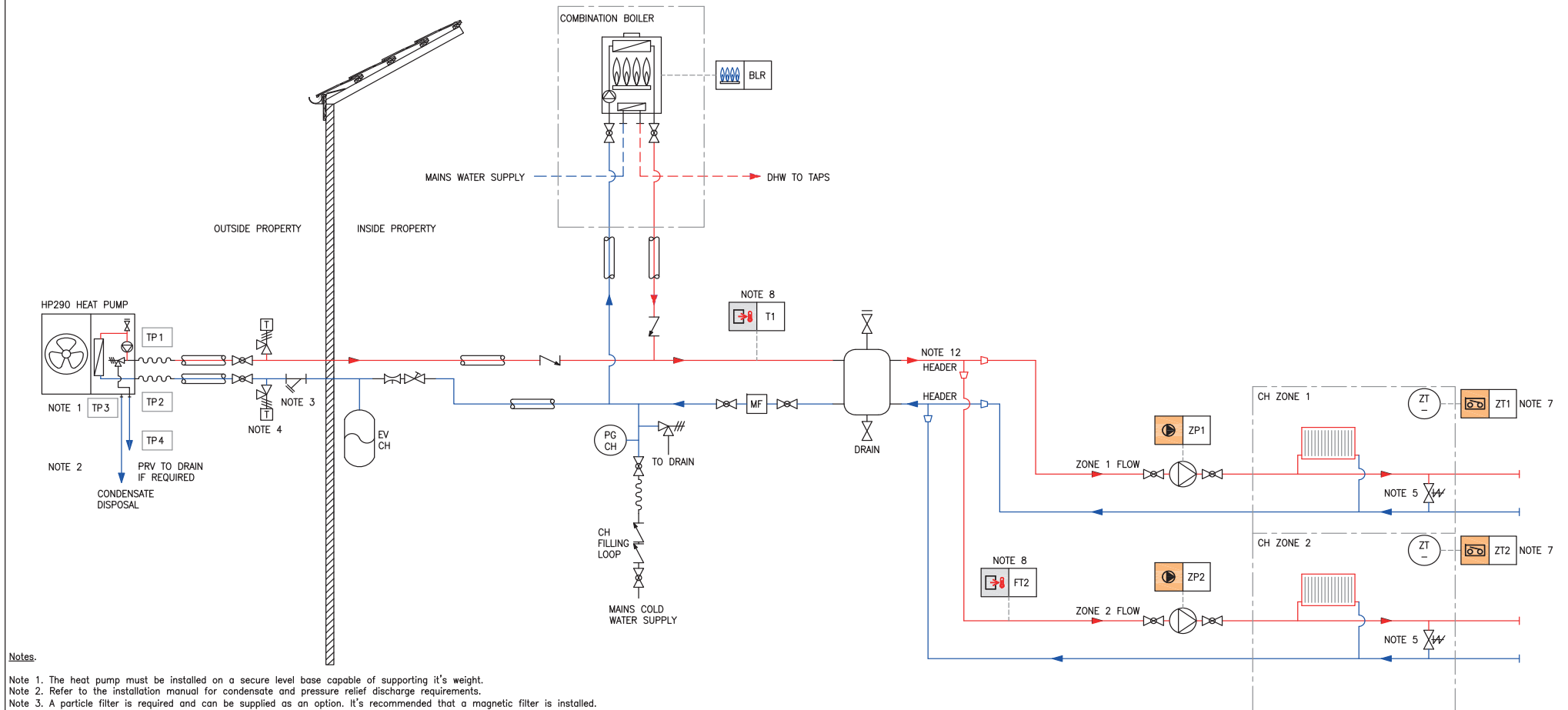
This drawing is for information and guidance only. It is the heating designer/installers responsibility to adhere to the latest relevant standards.

Refer to HP290 heat pump system installation and maintenance manual in conjunction with these schematic drawings.

Figure 7. HP290 + Two Zone Pre-plumbed Cylinder with Integrated Low Loss Header

CONNECTION POINT LIST					
TP No	DESCRIPTION	SIZE 4.5-6kW	SIZE 8-14kW	MATERIAL	TYPE
1	HEAT PUMP FLOW	1" BSP	1. 1/4" BSP	BRASS	BSP MALE
2	HEAT PUMP RETURN	1" BSP	1. 1/4" BSP	BRASS	BSP MALE
3	HEAT PUMP CONDENSATE DISPOSAL	32MM OD	32MM OD	PLASTIC	BARBED SPIGOT
4	PRESSURE RELIEF VALVE (PRV)	9MM ID	9MM ID	PVC	HOSE

## HP290 + Combi Boiler + Buffer + Two zones (Bivalent system).



### Notes.

- Note 1. The heat pump must be installed on a secure level base capable of supporting its weight.
- Note 2. Refer to the installation manual for condensate and pressure relief discharge requirements.
- Note 3. A particle filter is required and can be supplied as an option. It's recommended that a magnetic filter is installed.
- Note 4. Anti-freeze valves are required if glycol is not used in the system.
- Note 5. Install an auto-bypass if no permanent open circuit is available to allow secondary side pump overrun and normal operation.
- Note 6. Flow, return and outdoor sensors are integrated within the outdoor unit.
- Note 7. Refer to the installation manual for thermostat connection.
- Note 8. Two zone kit and T1 common flow thermistor required (supplied in hybrid kit). Positioned near buffer vessel.
- Note 9. Boiler must be complete with its own integral pump positioned on the return.
- Note 10. Single zone arrangement is an option.
- Note 11. Ensure the correct pipe size is installed. Refer to the HP290 heat pump and boiler installation manuals.
- Note 12. The buffer tank common flow header needs to be appropriately sized to meet the overall system flow requirements of both zones. Make sure both zones are balanced.
- Note 13. It is recommended that the boiler flow temperature is not set above 65°C.
- Note 14. Free volume must be considered as any part of the un-valved system volume (excluding the zone 2 space heating circuit) with sections of pipework and radiators without thermostatic radiator valves.

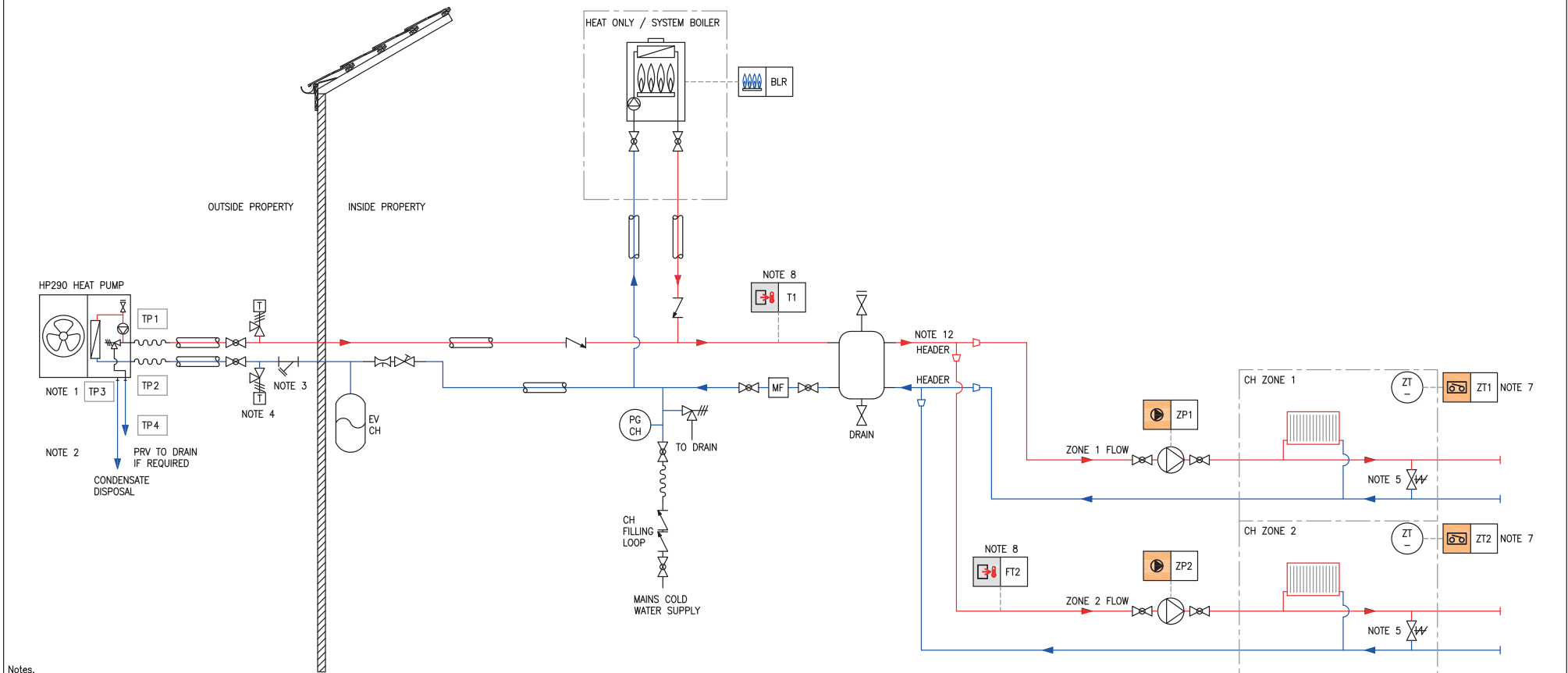
This drawing is for information and guidance only. It is the heating designer/ installers responsibility to adhere to the latest relevant standards.

Refer to HP290 heat pump system installation and maintenance manual in conjunction with these schematic drawings.

Figure 8. HP290 + Combi Boiler + Buffer + Two Zones Bivalent System

CONNECTION POINT LIST					
TP No	DESCRIPTION	SIZE 4.5–6kW	SIZE 8–14kW	MATERIAL	TYPE
1	HEAT PUMP FLOW	1" BSP	1. 1/4" BSP	BRASS	BSP MALE
2	HEAT PUMP RETURN	1" BSP	1. 1/4" BSP	BRASS	BSP MALE
3	HEAT PUMP CONDENSATE DISPOSAL	32MM OD	32MM OD	PLASTIC	BARBED SPIGOT
4	PRESSURE RELIEF VALVE (PRV)	9MM ID	9MM ID	PVC	HOSE

HP290 + Heating Only + System Boiler + Buffer + Two zones (Bivalent system).



Notes.

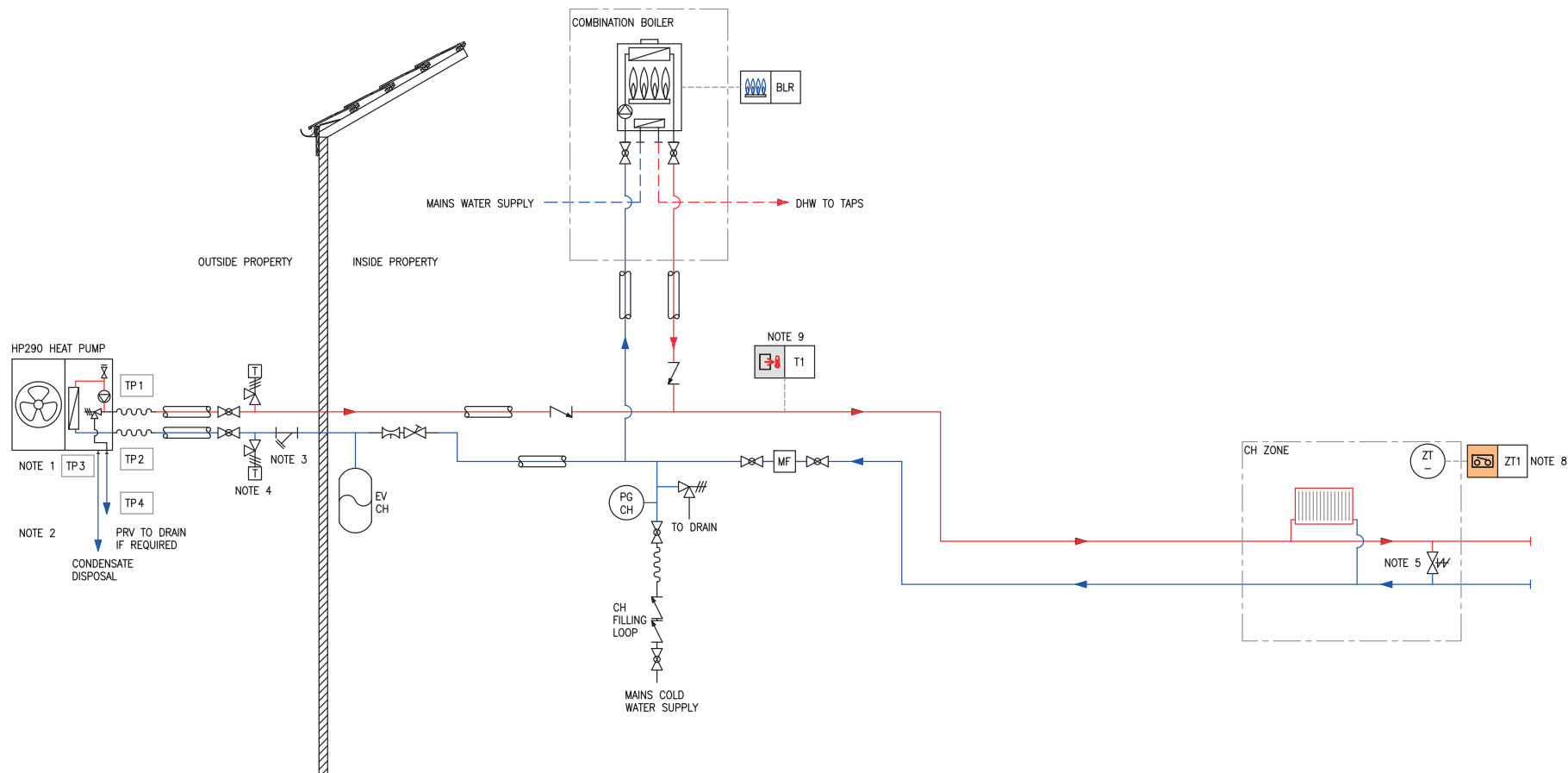
- Note 1. The heat pump must be installed on a secure level base capable of supporting its weight.
- Note 2. Refer to the installation manual for condensate and pressure relief discharge requirements.
- Note 3. A particle filter is required and can be supplied as an option. It's recommended that a magnetic filter is installed.
- Note 4. Anti-freeze valves are required if glycol is not used in the system.
- Note 5. Install an auto-bypass if no permanent open circuit is available to allow secondary side pump overrun and normal operation.
- Note 6. Flow, return and outdoor sensors are integrated within the outdoor unit.
- Note 7. Refer to the installation manual for thermostat connection.
- Note 8. Two zone kit and T1 common flow thermistor required (supplied in hybrid kit). Positioned near buffer vessel.
- Note 9. Boiler pump must be positioned on the return or in the case of a heat only boiler, an additional pump must be fitted to the boiler return.
- Note 10. Single zone arrangement is an option.
- Note 11. Ensure the correct pipe size is installed. Refer to the HP290 heat pump and boiler installation manuals.
- Note 12. The buffer tank common flow header needs to be appropriately sized to meet the overall system flow requirements of both zones. Make sure both zones are balanced.
- Note 13. Free volume must be considered as any part of the un-valved system volume (excluding the zone 2 space heating circuit) with sections of pipework and radiators without thermostatic radiator valves.

This drawing is for information and guidance only. It is the heating designer/ installers responsibility to adhere to the latest relevant standards.  
Refer to HP290 heat pump system installation and maintenance manual in conjunction with these schematic drawings.

Figure 9. HP290 + Heating Only + System Boiler + Buffer + Two zones Bivalent System

CONNECTION POINT LIST					
TP No	DESCRIPTION	SIZE 4.5-6kW	SIZE 8-14kW	MATERIAL	TYPE
1	HEAT PUMP FLOW	1" BSP	1. 1/4" BSP	BRASS	BSP MALE
2	HEAT PUMP RETURN	1" BSP	1. 1/4" BSP	BRASS	BSP MALE
3	HEAT PUMP CONDENSATE DISPOSAL	32MM OD	32MM OD	PLASTIC	BARBED SPIGOT
4	PRESSURE RELIEF VALVE (PRV)	9MM ID	9MM ID	PVC	HOSE

HP290 + Combi Boiler  
+ Single zone (Bivalent system).



#### Notes

- Note 1. The heat pump must be installed on a secure level base capable of supporting its weight.  
 Note 2. Refer to the installation manual for condensate and pressure relief discharge requirements.  
 Note 3. A particle filter is required and can be supplied as an option. It's recommended that a magnetic filter is installed.  
 Note 4. Anti-freeze valves are required if glycol is not used in the system.  
 Note 5. Install an auto-bypass if no permanent open circuit is available to allow pump overrun and normal operation.  
 Note 6. If minimum free system water volume cannot be met, a volumiser or buffer vessel is required. This is installed on the return circuit.  
 Note 7. Flow, return and outdoor sensors are integrated within the outdoor unit.  
 Note 8. Refer to the installation manual for thermostat connection.  
 Note 9. T1 sensor required (supplied in hybrid kit).  
 Note 10. Boiler must be complete with its own integral pump positioned on the return.  
 Note 11. Ensure the correct pipe size is installed. Refer to the HP290 heat pump and boiler installation manuals.  
 Note 12. It is recommended that the boiler flow temperature is not set above 65°C.

This drawing is for information and guidance only. It is the heating designer/ installers responsibility to adhere to the latest relevant standards.

Refer to HP290 heat pump system installation and maintenance manual in conjunction with these schematic drawings.

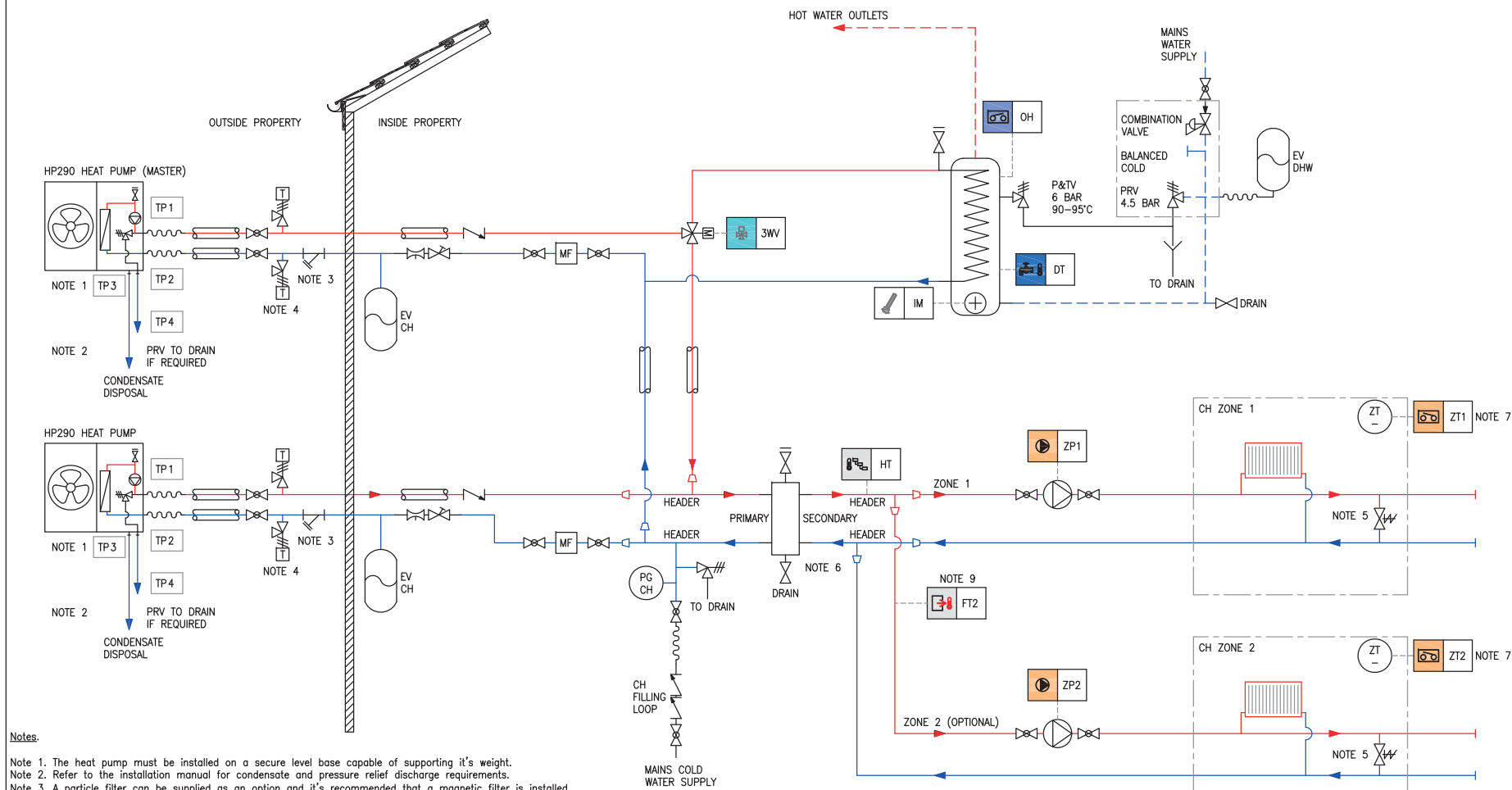
Figure 10. HP290 + Combi Boiler + Single Zone Bivalent System





CONNECTION POINT LIST				
TP No	DESCRIPTION	SIZE 4.5-6kW	SIZE 8-14kW	MATERIAL
1	HEAT PUMP FLOW	1" BSP	1. 1/4" BSP	BRASS
2	HEAT PUMP RETURN	1" BSP	1. 1/4" BSP	BRASS
3	HEAT PUMP CONDENSATE DISPOSAL	32MM OD	32MM OD	PLASTIC
4	PRESSURE RELIEF VALVE (PRV)	9MM ID	9MM ID	PVC
				HOSE

## HP290 Cascade + 3rd Party DHW Cylinder + Decoupler with 2 Zones.



### Notes.

- Note 1. The heat pump must be installed on a secure level base capable of supporting its weight.
- Note 2. Refer to the installation manual for condensate and pressure relief discharge requirements.
- Note 3. A particle filter can be supplied as an option and it's recommended that a magnetic filter is installed. Pre-plumbed cylinders are supplied complete with a combined magnetic and particle filter.
- Note 4. Anti-freeze valves are required if glycol is not used in the system.
- Note 5. Install an auto-bypass if no permanent open circuit is available to allow secondary side pump overrun and normal operation.
- Note 6. Low loss separator (Hydraulic decoupler).
- Note 7. Refer to the installation manual for thermostat connection.
- Note 8. Flow, return and outdoor sensors are integrated within the outdoor unit.
- Note 9. Two zone kit required.
- Note 10. Free volume must be considered as any part of the un-valved system volume (excluding the zone 2 space heating circuit) with sections of pipework and radiators without thermostatic radiator valves.

This drawing is for information and guidance only. It is the heating designer/ installers responsibility to adhere to the latest relevant standards.

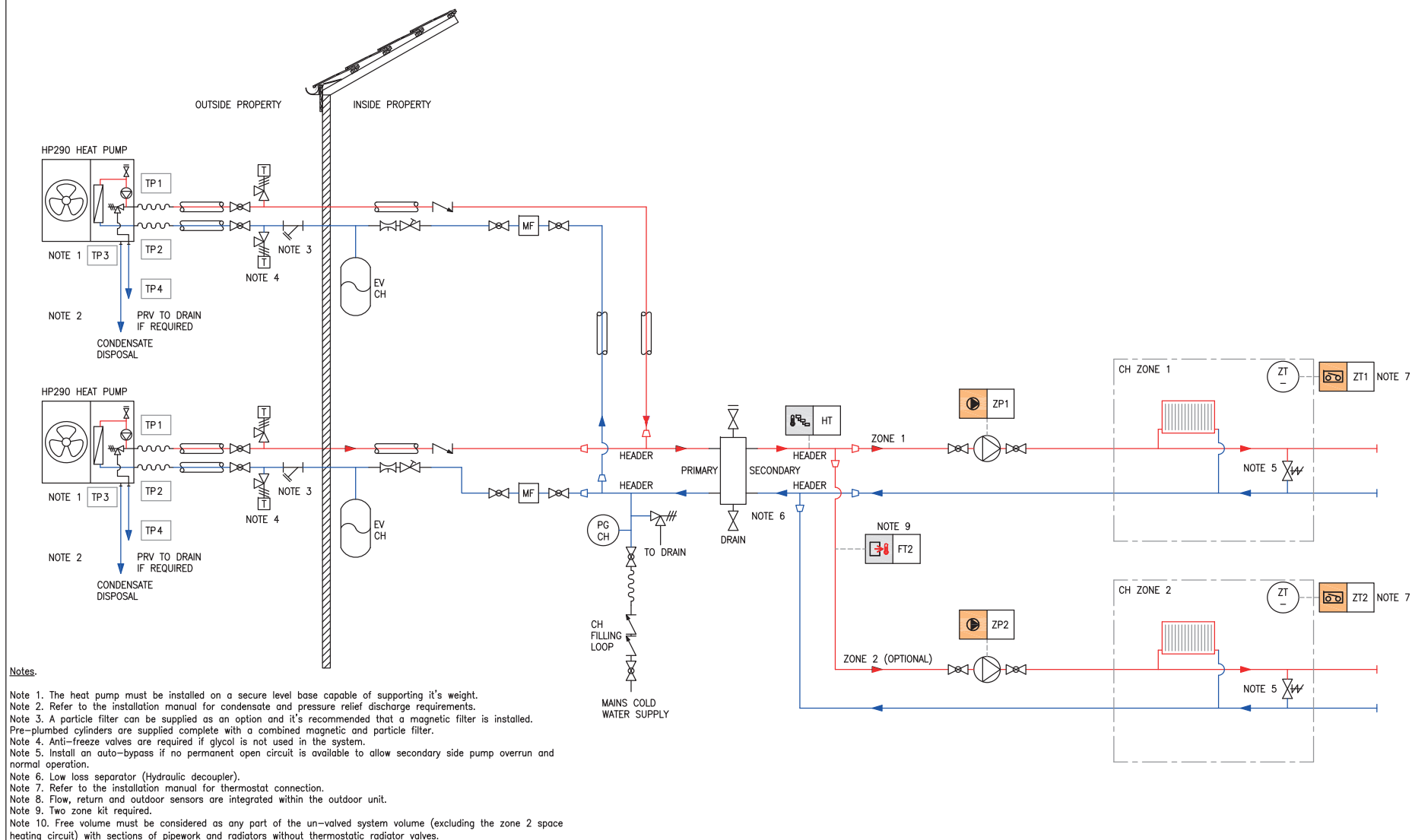
Refer to HP290 heat pump system installation and maintenance manual in conjunction with these schematic drawings.

Figure 13. HP290 Cascade + 3rd Party DHW Cylinder + Decoupler with Two Zones



CONNECTION POINT LIST					
TP No	DESCRIPTION	SIZE 4.5-6kW	SIZE 8-14kW	MATERIAL	TYPE
1	HEAT PUMP FLOW	1" BSP	1. 1/4" BSP	BRASS	BSP MALE
2	HEAT PUMP RETURN	1" BSP	1. 1/4" BSP	BRASS	BSP MALE
3	HEAT PUMP CONDENSATE DISPOSAL	32MM OD	32MM OD	PLASTIC	BARBED SPIGOT
4	PRESSURE RELIEF VALVE (PRV)	9MM ID	9MM ID	PVC	HOSE

## HP290 Heat Only Cascade + Decoupler with 2 Zones.



This drawing is for information and guidance only. It is the heating designer/ installers responsibility to adhere to the latest relevant standards.

Refer to HP290 heat pump system installation and maintenance manual in conjunction with these schematic drawings.

Figure 14. HP290 Heat Only Cascade + Decoupler with Two Zones

At Ideal Heating we take our environmental impact seriously, therefore when installing any Ideal Heating product please make sure to dispose of any previous appliance in an environmentally conscious manner. Households can contact their local authority to find out how. See <https://www.gov.uk/managing-your-waste-an-overview> for guidance on how to efficiently recycle your business waste.



#### Technical Training

Our Expert Academy offer a range of training options designed and delivered by our experts in heating. For details please contact: [expert-academy.co.uk](mailto:expert-academy.co.uk)

Ideal Boilers Ltd., pursues a policy of continuing improvement in the design and performance of its products. The right is therefore reserved to vary specification without notice.

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[service@idealenergy.ie](mailto:service@idealenergy.ie)

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