FARM 2000

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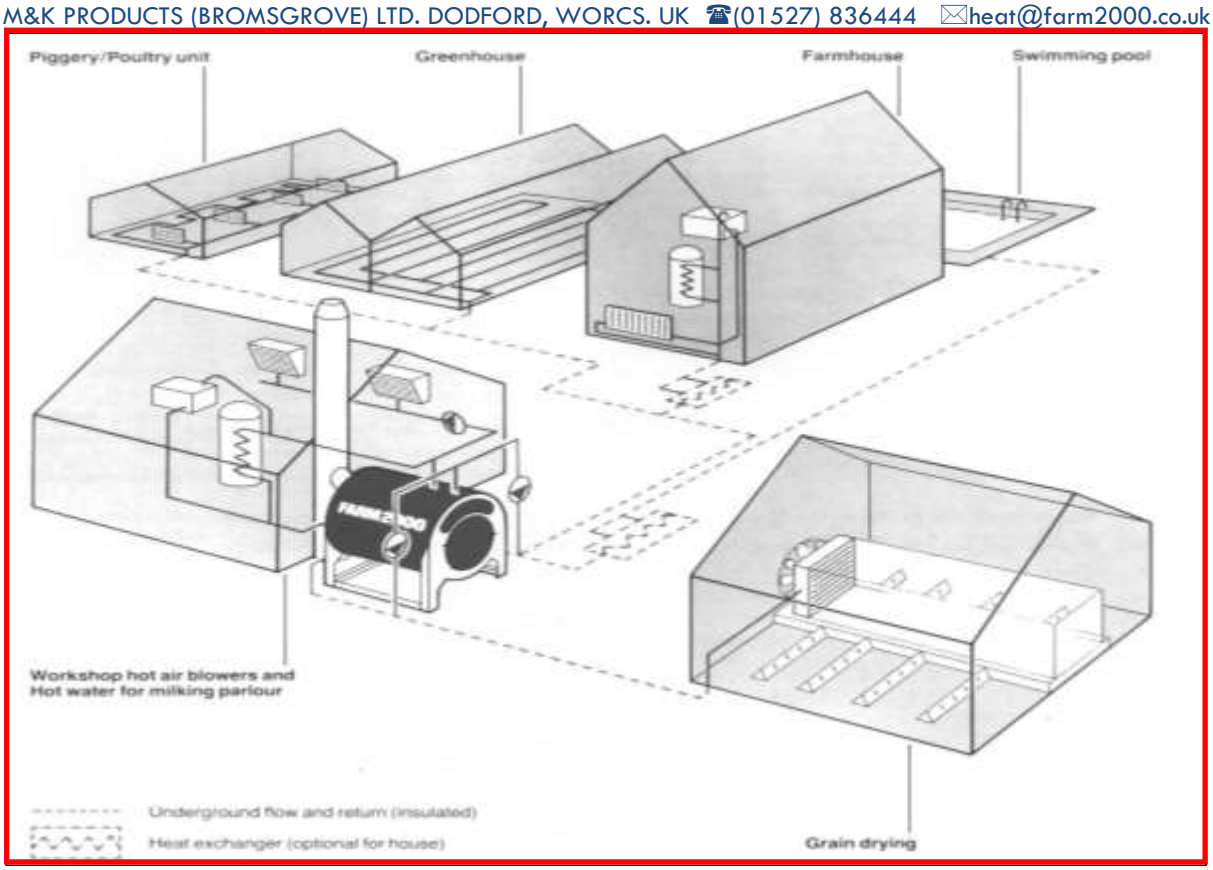

*GENERAL INSTALLATION INSTRUCTIONS FOR FARM 2000 BOILERS**

Separate booklets available for RHI models i.e. HTR and BBR

*** A comprehensive Installation and Operating Instruction Booklet can be downloaded from Technical Downloads on our website www.farm2000.co.uk. which also includes video of boiler operation**

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CE

Your **FARM 2000 BOILER** is a sound investment which will provide low cost heat for many years. To ensure the best use of your boiler and long service, ***we strongly recommend that you follow these instructions closely. Incorrect installation and operation of the boiler will reduce its service life.***

For installation purposes these instructions apply to all FARM2000 boilers.

For operating and fueling instructions for HTR and BBR boilers (i.e. for RHI) see relevant booklets.

Wearing/Service Parts: Please be aware that steel air distribution parts used in the combustion chamber may need replacing every 2 – 5 years depending on fuel being used and boiler operation. Insufficient air, premature idling or use of some waste woods may shorten their life.

A. FUEL (HTR boilers, i.e. for RHI, should only be fired on wood logs – see separate booklet)

FARM2000 boilers can only burn solid biomass fuels. They are not suitable for burning fossil fuels such as coal, coke, oil or gas.

Typical biomass fuels are wood and straw. Efficient operation can only be achieved with dry fuel. Outputs are based upon maximum moisture contents of 17% for straw and 20% for wood. Levels above this reduce outputs and efficiency, cause incomplete combustion (producing excess smoke), and increase ash and deposits in the boiler and chimney. Excess moisture can also cause corrosion.

STRAW - When using cereal straw, good results are only obtained if the straw is left for at least a week before baling. **In addition, *straw burns best, and with less ash, if it has been rained on! i.e. grey straw rather than yellow straw*** *(rain washes the potash out of the straw, returning it to the soil)*. However, the straw must then be baled when it is ***dry without dew,*** and stored under cover. Lightweight-to-medium density bales burn best. High density bales do not burn well. ***The extra work involved in producing weathered but dry straw helps provide efficient boiler operation in winter.***

Linseed, bean and rape straw are excellent fuels because of their lower ash content (but are not eligible for RHI).

However Rape straw can produce acrid smells and we recommend that it is not used if there are nearby houses. It burns best if a cereal straw bale is added at the front of the chamber.

WOOD - should be felled before spring, stored for at least 2 years, and be under a roof for at least 6 months before the winter of use, somewhere where the wind can get at it, but not the rain.

Untreated clean wood-waste, including pallets, off-cuts etc., can be used as fuel in the smaller HT boilers provided boiler is only maximum half filled, otherwise instability, blow-backs and excessive smoke may be produced. **We strongly recommend such fuels should only be burned in boiler models HT50, HT60 and HT70.** Load small amounts to start to see how it burns. The fuel load should be fairly compact, i.e. not too much space between pieces. Sawdust or shavings should only be burned with automatic stoking or in small quantities mixed with off-cuts. Treated waste wood may be corrosive and should not be used

DO NOT BURN TYRES, PLASTICS, RUBBER ETC, OR ANY FORM OF FOSSIL FUEL. THIS IS NOT ONLY DANGEROUS BUT WILL DAMAGE THE APPLIANCE AND INVALIDATE ANY WARRANTY CLAIM.

B. GENERAL NOTES ON SITING AND INSTALLATION

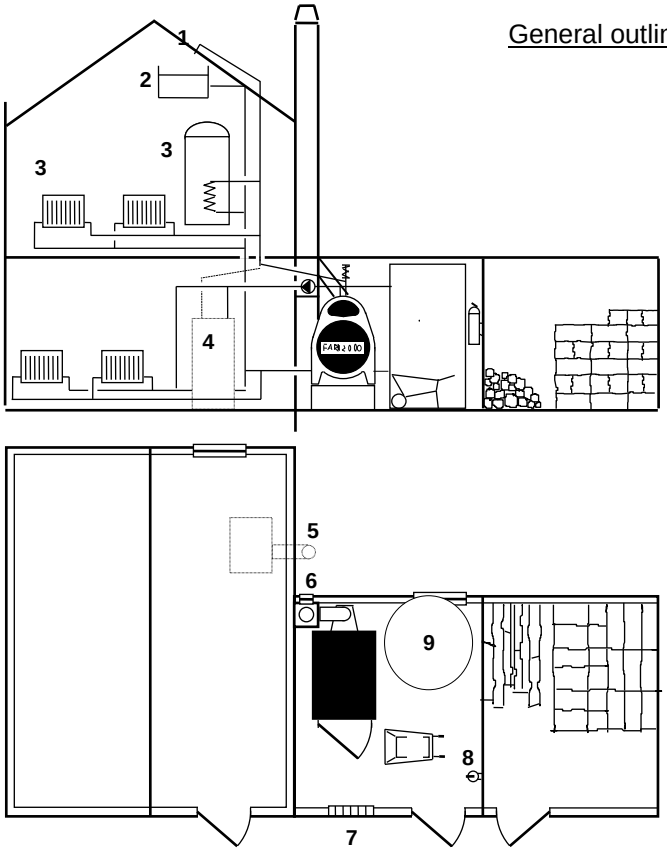
FOR DETAILS ON CHIMNEY AND PLUMBING, SEE SECTION C and D.

The following criteria apply when choosing a site for the boiler:

1. Ease and convenience of fuel handling. Fuel must be stored under cover ***adjacent*** to the boiler room, ***not in it***.
2. The boiler should be installed external to the dwelling area.
3. Site the boiler where a suitable chimney can be erected, or an existing chimney utilised *(See Section C)*
4. The boiler should be positioned so the cold feed and open vent are protected from frost, and where there is some form of gravity heat leak *(See Section D&E).*
5. The boiler can be installed remote from the heated requirement, with insulated underground pipework *provided an accumulator is installed next to the boiler, or that there is some form of heat leak.*

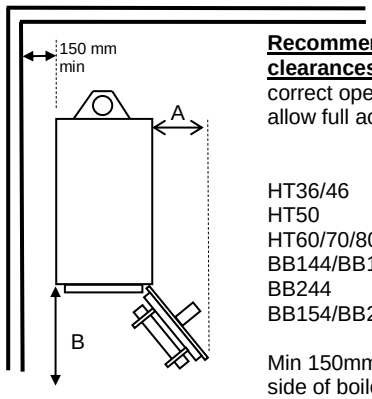
Boiler should be installed according to this booklet and the following;

- The boiler must be installed in a fire-proof boiler room, which should NOT be an integral part of a domestic dwelling.
- The boiler must only be installed by a competent heating engineer, using black iron or copper pipe and fittings.
- The boiler, chimney and system should be installed in compliance with current relevant Building Regulations and B.S. Codes of Practice for solid fuel appliances, flues and chimneys
- All electrical work should be carried out to current I.E.E. Standards.
- The installation should conform to Local Authority and Water Board Regulations.
- There must be no valves in the cold feed or open vent.
- Except for exempted models, the boiler should not be installed without special dispensation in smoke control areas.
- The boiler should be under cover with adequate ventilation for the boiler at the rate of 1 sq. ft. per 250,000 BTU/hr. (0.12m² per 100 kW). Boiler house should not be built from any readily combustible materials.



General outline installation. For full details see later pages

1. **Open Vent.**
2. **Cold feed and expansion.**
3. **Gravity circuit.**
4. **Existing oil/gas fired boiler (optional) (pumped circuit)**
5. **Separate chimney for existing boiler.**
6. **Access for chimney cleaning.**
7. **Ventilation at floor and ceiling level.**
8. **Fire extinguisher.**
9. **Accumulator tank**



Recommended minimum boiler clearances from walls etc to allow correct opening of boiler door and allow full access when stoking.

	A	B
HT36/46	550mm	850 mm
HT50	625mm	1020mm
HT60/70/80	770mm	1380mm
BB144/BB146 BB244	1230mm	1770mm
BB154/BB254	1380mm	2050mm

Min 150mm clearance on non-hinged side of boiler on all models.

- **The boiler must be on a level concrete or brick surface. For Big Bale Boilers ensure the door cannot swing closed by gravity, and arrange for the door to be secured whilst stoking. Big Bale Boilers should be installed in their final position and the door checked before plumbing. If it is felt the door can swing closed, the rear of the boiler can be shimmed up to provide a more neutral action.**
- Allow sufficient clearance from boiler room walls etc. to allow main door to open fully to provide full access when loading, consideration must be given to the fan on the front of the door and components mounted on the rear of the door that can protrude into the boiler chamber opening.
- With the exception of Big Bale Boilers, the boiler should be raised by 300mm – 400mm on a plinth to suit wheelbarrow. This makes stoking and de-ashing easier.
- There must be good access to the rear of the boiler for cleaning the flue box and chimney.
- Allow clearance in front of the boiler for tube cleaning (i.e. length of combustion chamber plus, at least 100 mm.)
- There should be no combustible material in the boiler room, which should be constructed from non-combustible materials.
- There should be a fire extinguisher and water hose accessible from the boiler and boiler room door.
- A water hose must be easily accessible by the main door of all Big Bale Boilers (tractor may stall when loading !).

NOISE LEVELS

The following airborne noise level data applies to FARM 2000 boilers; at 1m. from free blowing fan (A-weighted sound pressure level, dB(A) reading) This is given in order to comply with the European 'Machinery Directive':

A3.5F, HT26, HT36 (G2E-120 fan) - 53 dB(A); A6plusF, HT70 (G2E-140[4µF] fan) - 67 dB(A); A5F, A6F, HT46, HT50 (G2E-120 fan) - 53 dB(A); HT80 (G2E-160 fan) - 72 dB(A); HT60 (G2E-140[2µF] fan) - 59 dB(A); BB144/3, BB146/3, BB154/3 (G3G180 fan) - 77 dB(A); BB244/3, BB254/3, BB254H/3 (VBL9 fan) - 95 dB(A)

C. CHIMNEY

The boiler's efficiency and output are dependent on a well designed chimney. The two functions of a chimney are to disperse the exhaust gases, **and** to provide adequate draught through the boiler so the fuel always burns under a negative pressure. Failure to achieve this results in inefficient combustion, a dirty boiler and boiler corrosion. It can also cause dangerous blow-backs during operation.

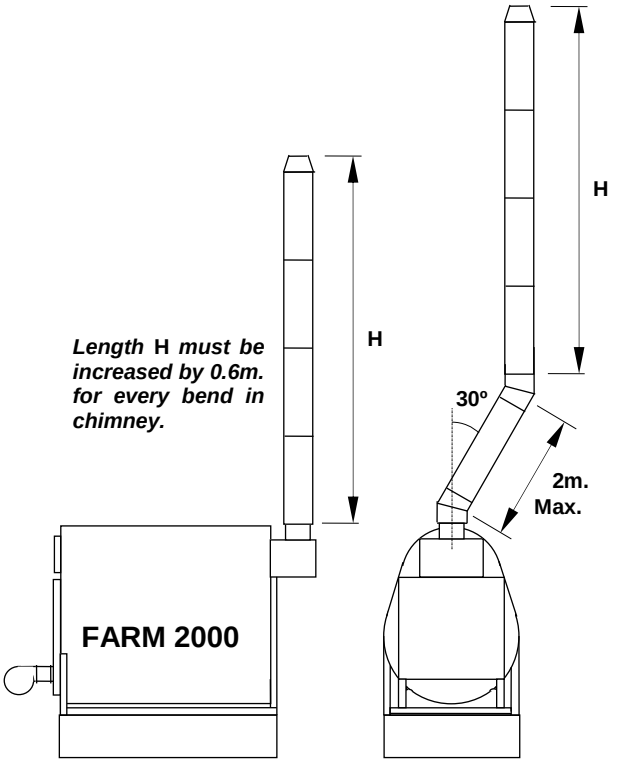
The chimney should rise vertically from the boiler flue spigot, preferably with no bends or elbows, and its minimum height from the flue box spigot is shown below: Boiler life will be significantly reduced if these recommendations are not followed.

The chimney is made up from sectional lengths and is not self supporting. It must be secured to a wall (if sufficient height is available) or to a steel mast as shown. Chimney support mast to be sourced locally.

To test chimney draught (do this when boiler and chimney are warm), open the small stoker door when there is a fire in the boiler, and if smoke is emits continuously, the draw is likely to be inadequate.

We strongly recommend a straight chimney without bends for best performance and prolonged boiler life.

BOILER MODEL	MIN. LENGTH H (M)
A3.5F, A5F, HT26, HT36	5
A6F, HT46	5.5
HT50, HT60	6
HT70	7.6
BB144/3	8.3
HT80, BB146/3, BB154/3, BB244/3	9.2
BB254/3, BB254H/3	11.6



* all angles quoted to the vertical

The Chimney must be higher than surrounding buildings and be insulated to the top, to prevent cooling of the flue gases.

There must be no horizontal lengths of flue pipe and, if the boiler is being connected to an existing brick chimney, this should be via a 30° elbow*; only if space does not permit should a 45° elbow* be used. If a chimney has to be routed round an obstruction use 15° or 30° elbows*. There must never be more than ***two*** elbows in a chimney. Please send us a drawing of your intended design for comment.

Ensure that all of the chimney can be swept.

Teisen Products supply the most suitable chimney which is sectional, insulated (50mm thickness), twin wall stainless steel construction. This type of chimney provides a better draught than a brick chimney because it heats up faster and has smoother internal surfaces, and is easier and less costly to install.

If an existing brick chimney is to be used, ensure that its internal dimensions and height are adequate, it is properly insulated and can be easily swept. The connecting flue pipe should be insulated.

Chimney pots and chimney caps should not be fitted. ***The chimney must only serve one appliance.***

STAINLESS STEEL INSULATED CHIMNEY
(can be supplied colour powder coated to suit)

This is not a working drawing and is for guidance only. Details of mast specification, foundation, supports and chimney should be checked by installer, taking local conditions and building regulations into account.

Ref: MIDTHERM CHIMNEYS - WIC/HT					
Internal Diameter (mm)		175	200	250	300
A	Maximum length of chimney boiler can support (m)	7	6	7	4
B	Maximum length of unsupported chimney (m)	1.7	1.7	1.7	1.7
C	Recommended max. distance between Brackets (m)	3	3	2	2
D	Maximum length of chimney above an intermediate vertical support (m)	8	8	7	6

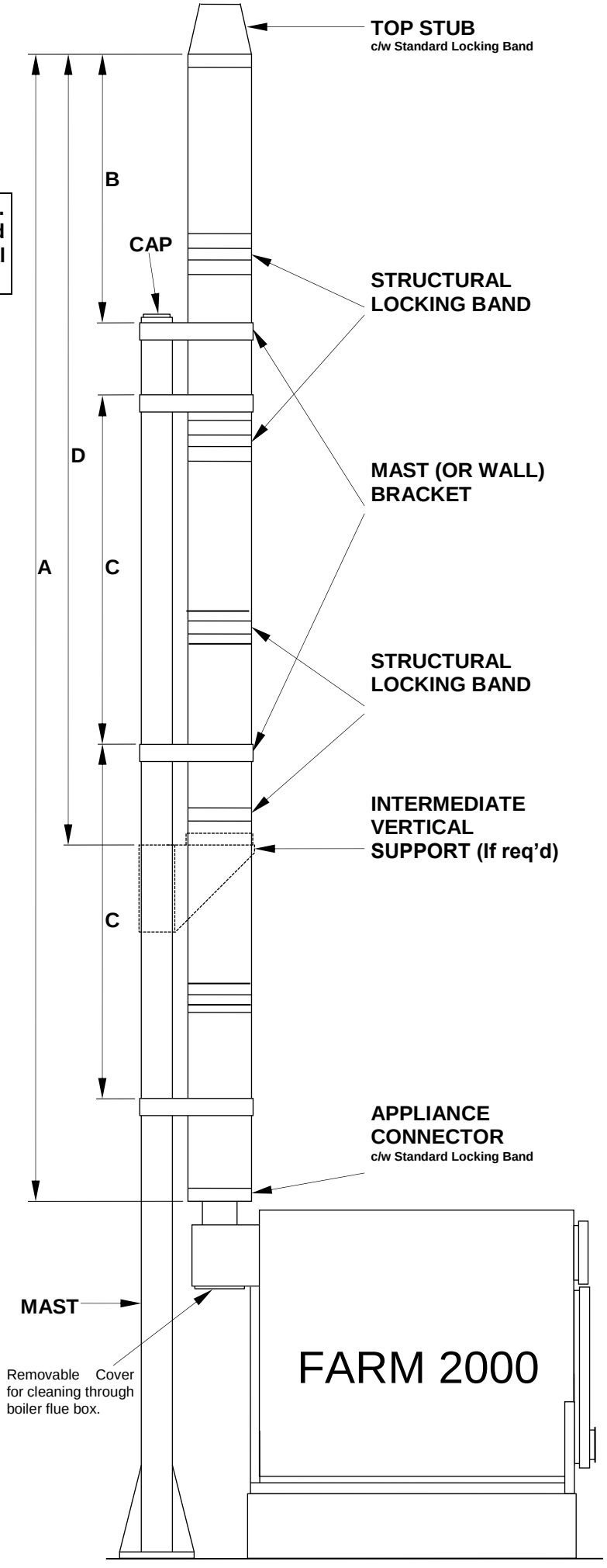
Chimney Diameter ***must not be less*** than the the boiler flue spigot diameter.

CHIMNEY MAST SECTION GUIDE	
Chimney Height above ground (m)	R.H.S. Section *
8.1m	150 x 150 x 8
9.1m	180 x 180 x 8
10.6m	200 x 200 x 10
11.3m	250 x 250 x 8
12.6m	250 x 250 x 12.5

*This section can be reduced in sheltered areas or if part of chimney is inside building.

If the 50 mm insulated chimney passes through a wall or ceiling, the outer skin must be at least 100 mm from any combustible material. For extra protection fit a stainless steel heat shield sleeve in front of any woodwork. **Uninsulated** (single wall) flue pipe must have at least 500 mm clearance **and** a heat shield.

Further information on chimney, mast and mast foundation available on request.
See drg. 410/1

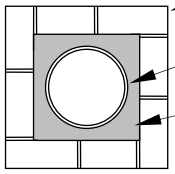


BRICKWORK

NOTE:-

THIS DRAWING IS FOR REFERENCE ONLY.

FOR COMPLETE SPECIFICATION USE S.F.A.S. BOOKLET "DOMESTIC MASONRY CHIMNEYS" AND BUILDING REGULATIONS.



Brickwork

Liner

Insulation

Granite chip concrete capping at 45º.

150mm

Iso-kern, Refractory, or Stainless Steel (1mm) Liner.

Insulating 'in fill',
e.g. Pearlite/cement
vermiculite/cement
leca/cement
(min recommended 50mm)

Single or double skin brickwork

Cross sectional area not less than that of boiler flue outlet pipe

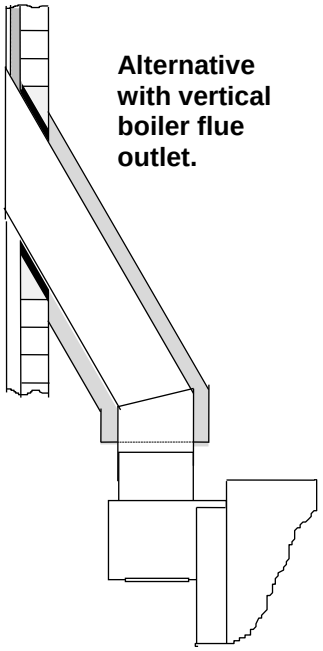
Angled steel wall thimble

Caulking

Stainless steel flue pipe (insulate on site).

Soot cleaning door.

Clean out access panel



Alternative with vertical boiler flue outlet.

Allow length of comb. chamber plus 100mm. min. clearance for tube cleaning rods.

FARM 2000

Clear area for fuel access.

300 - 500mm

Concrete plinth or brickwork to raise boiler to desired stoking height.
*BB Boilers NOT to be raised

D. PLUMBING (Including Accumulators)

The **FARM 2000** Boiler is a Low Temperature Hot Water Boiler (LTHW), and should only be fitted to open vented, indirect heating systems. See data sheets for maximum system pressures.

In addition to the guidelines given under Section B, the following recommendations must be observed:-

- The boiler must always have its own separate cold feed and open vent pipes.
- The open vent, ***which must have a continual rise,*** should preferably discharge into the feed and expansion tank. The discharge height ***must*** be above the feed and expansion tank level.
- There should be no valves in the cold feed or open vent.
- All pipework should be black iron (medium gauge) or copper. Fittings must be able to withstand boiling water.

The table below shows minimum sizes of cold feed, open vent and overflow pipes.

BOILER MODEL	COLD FEED		OPEN VENT		OVERFLOW	
	Iron	Copper	Iron	Copper	Iron	Copper
A3.5F, A5F, HT26, HT36, HT46	¾"	22mm	1"	28mm	1"	28mm
HT50, HT60, HT70, A6F	1"	28mm	1¼"	35mm	1"	28mm
HT80, ALL BB BOILERS	1½"		2"		2"	

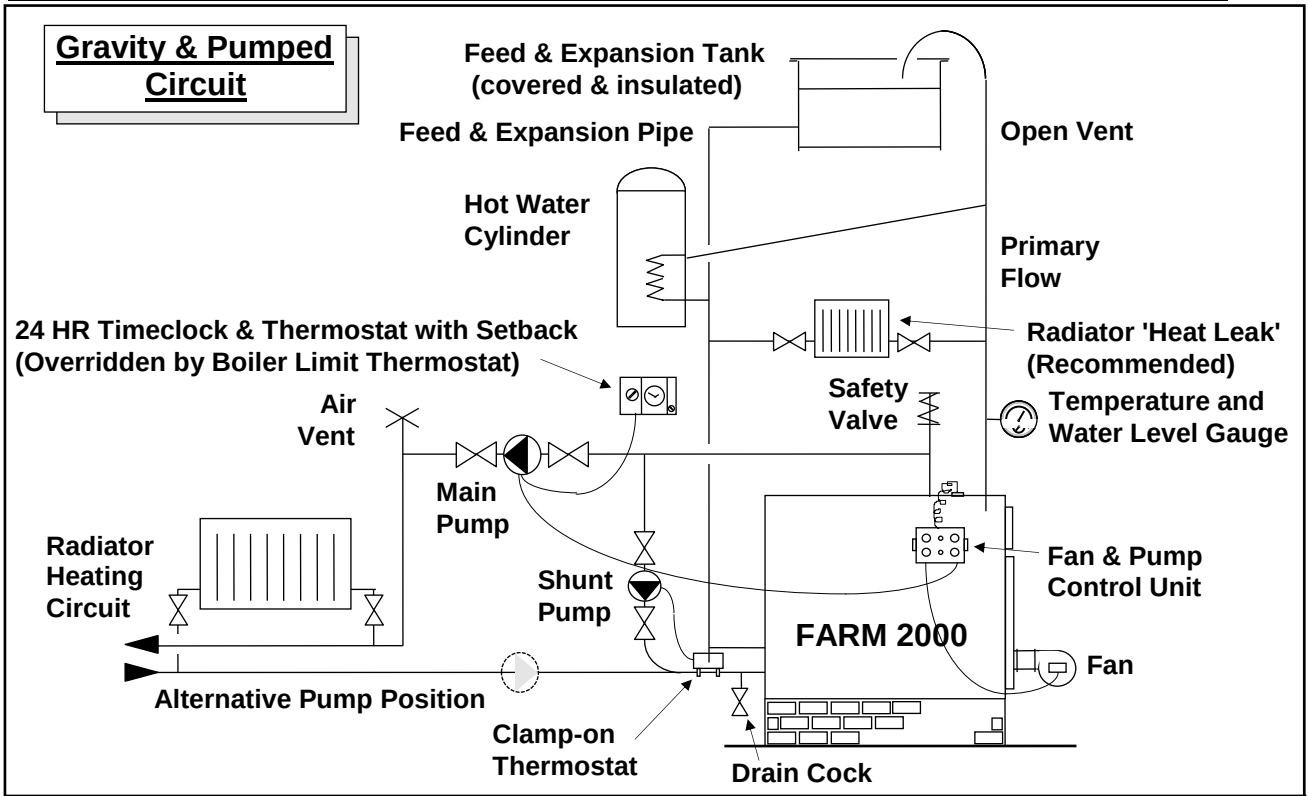
These sizes should be increased if no gravity circulation available.

- The feed and expansion tank should be capable of withstanding boiling water and preferably be of galvanised iron with sufficient capacity to allow the water in the system to expand by 3.5% **without** overflowing. We therefore recommend the feed and expansion tank capacity should be 6% of total water in system. Adjust the water level to approx 20 – 25% of tank height.
- The float valve should be fitted with a copper float to withstand the effects of overheating.
- The overflow pipe from the feed and expansion tank ***must*** be copper or iron.
- A safety valve must be fitted to suit the static head of water (refer BS759). The minimum discharge aperture should be 1½", and should be directed away from any passer-by. (M&K Products can supply)
- A pumped shunt system should be included to prevent back-end corrosion, improve combustion and overall efficiency. For systems without accumulators, a small domestic circulating pump can be used, controlled by a thermostat installed on the main return pipe. The thermostat should be wired to maintain the return temperature above 57°C. (i.e. to make on a fall in temperature)

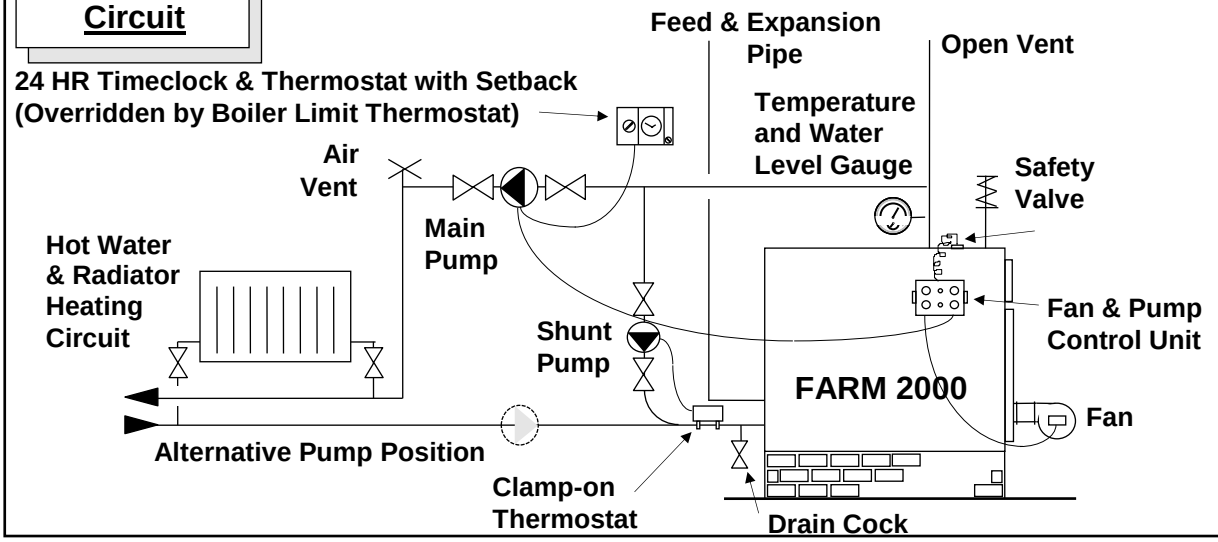
  For systems with an accumulator the shunt is controlled via the flow temperature using a clamp-on pipe thermostat wired to make on a rise in temperature (60°C).
- The thermostats and temperature gauge must be positioned in the boiler jacket, primary flow or shunt circuit if it is a fully pumped system. ***Do not fit them in a "blind" pipe.***
- Although recommended for all boilers, a gravity leak is not essential when straw is the main fuel. However, a heat leak is recommended when wood is the main fuel and is essential for models HT50 (290,000 BTU/hr) and upwards. The heat leak should be at least 5% of the maximum output of the boiler.

PLUMBING LAYOUTS FOR DOMESTIC HOT WATER AND CENTRAL HEATING (without Accumulator)

Gravity & Pumped Circuit

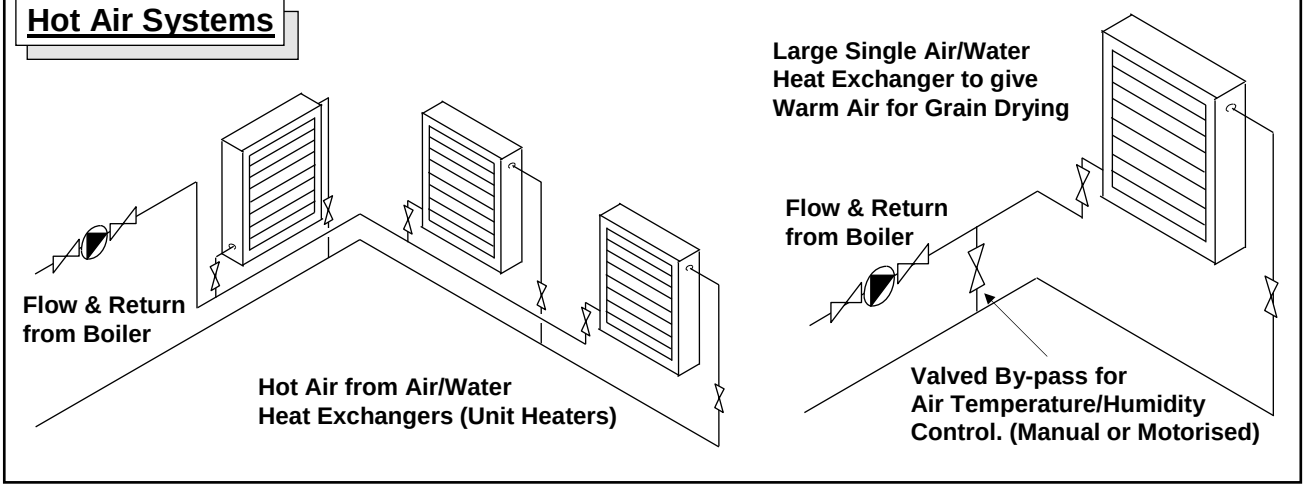


Fully Pumped Circuit

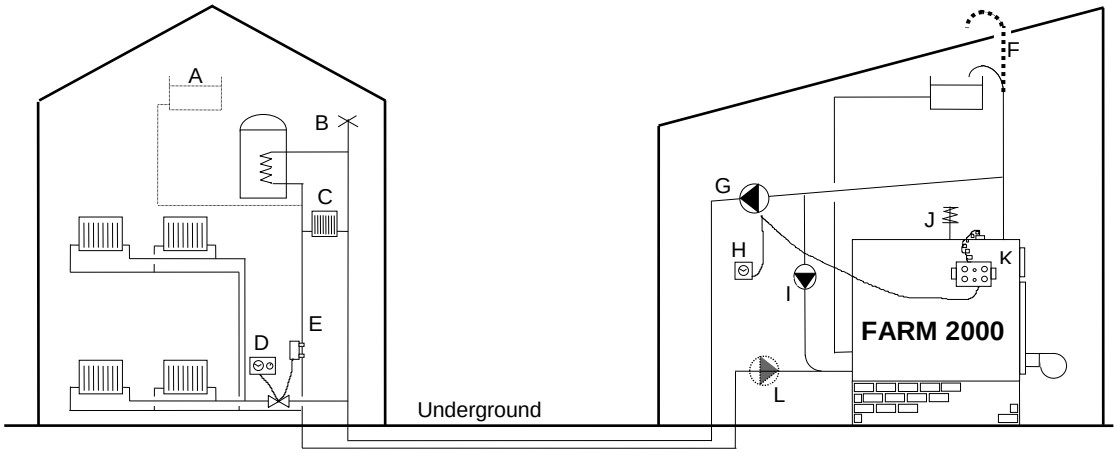


NOTE Thermostat & Temperature Gauge Pockets **MUST** be Fully Immersed in Water Flow.

Hot Air Systems



REMOTE BOILER INSTALLATION WITH SUFFICIENT HEIGHT FOR F & E TANK AT BOILER (without Accumulator)

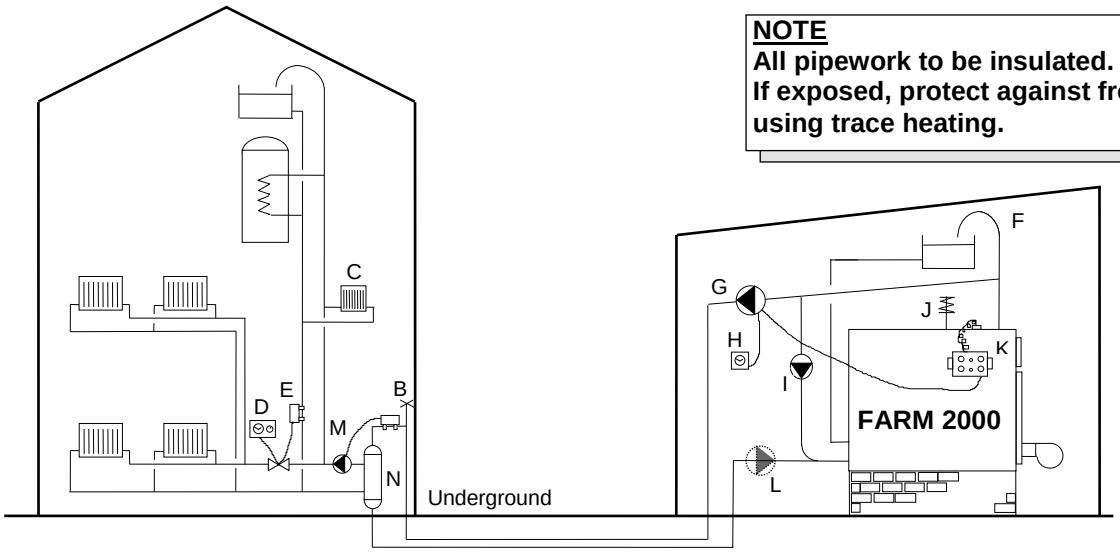


A. Alternative position for feed and expansion (F & E) tank. **B.** Air Vent. **C.** Radiator 'heat leak'.
D. 24 Hr timeclock and room thermostat with set-back (Valliant) for central heating valve. (Set to heating times in H).
E. Limit thermostat, overrides D in the event of overheat. (Set at approx. 85ºC). (May require a relay).
F. Open vent must be above the F & E tank.
G. Main pump operated by 24 Hr timeclock H, and boiler limit thermostat.
H. Set to run pump during normal heating times <u>and</u> for short periods outside heating time.

e.g. *01:00-01:30 Hot water circuit* *05:00-10:00 Hot water and heating*
03:00-03:30 Hot water circuit *12:00-14:00 Hot water and heating*
16:00-22:00 Hot water and heating

I. Shunt pump. **J.** Safety valve. **K.** Boiler fan control unit.
L. Alternative position for main pump, on return provided cold feed is between pump and boiler.

REMOTE BOILER INSTALLATION WITH INSUFFICIENT HEIGHT ABOVE BOILER



M. Pump to operate when primary circuit temperature is above 60ºC. **N.** Heat Exchanger.

Above drawings are for boiler installations <u>without</u> accumulators, however we strongly recommend that accumulators are included. See pages 10 to 15

H. ACCUMULATOR SYSTEMS

ESSENTIAL FOR ALL BIG BALE AND LARGER BOILERS

Accumulator system has the following advantages:-

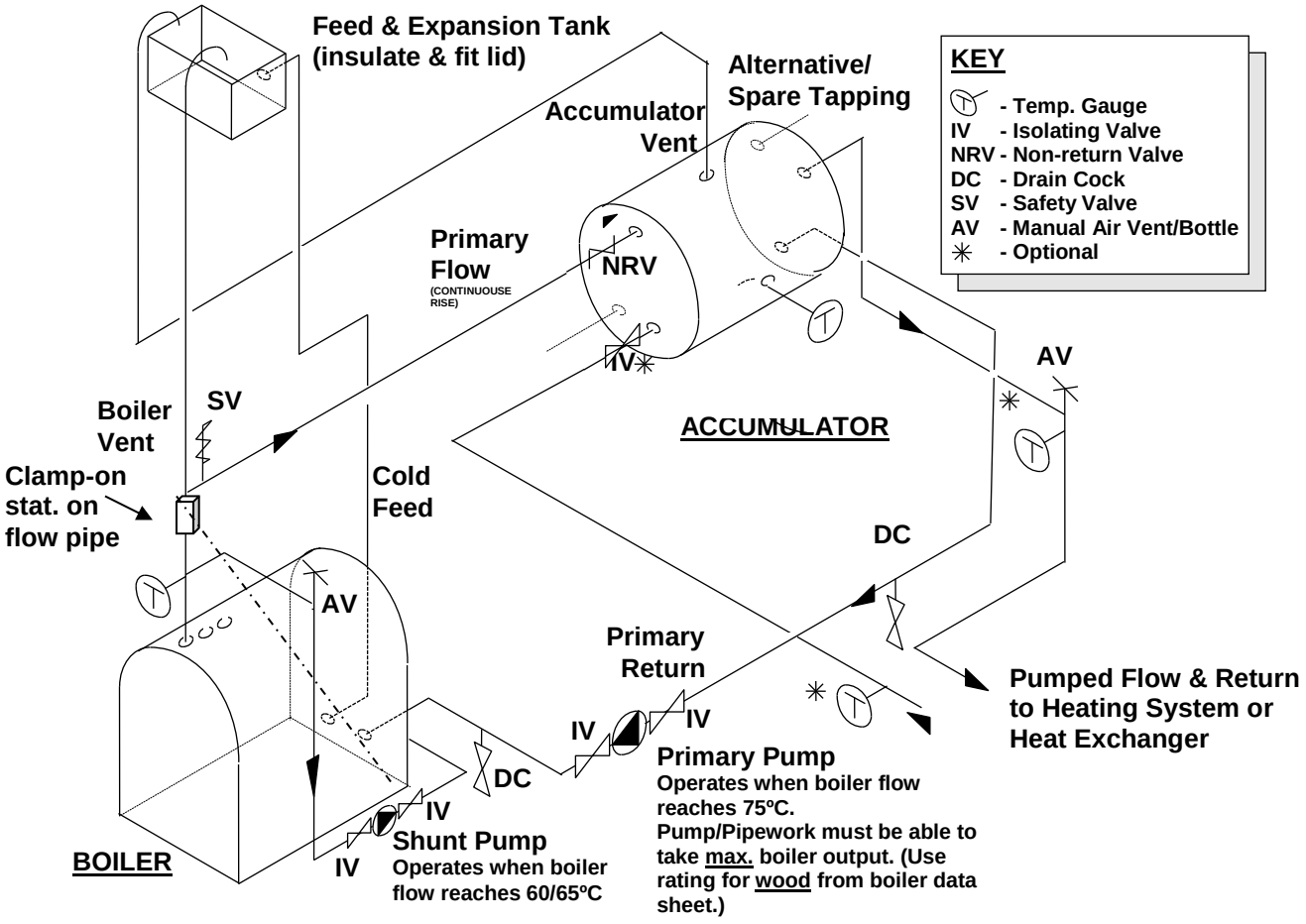
- Enables lower stoking frequency, typically 1 – 2 times per day or 2 – 3 times per week in summer
- Enables boiler to operate at higher combustion efficiency, due to un-interrupted burn
- Allows increased flexibility of stoking times with improved convenience i.e. you can stoke when you want to, rather than when you have to
- Stores heat ahead of requirement (e.g. grain drying, greenhouse, piggery night time heating etc)
- Acts as heat leak
- Ensures cleaner combustion with lower maintenance and cleaning requirement
- Prolongs boiler life

Recommended Approx. Accumulator Sizes (Litres) for Boiler Models

MODEL	STRAW-FIRED		WOOD-FIRED	
	Minimum	*Recommended*	*Minimum*	*Recommended*
HT50R	5,000	7,500	7,000	10,000 plus
HT60R	7,500	10,000	10,000	15,000 plus
HT70R	10,000	12,500	15,000	20,000 plus
HT80R	12,500	15,000	20,000	25,000 plus
BB144/3R	15,000	20,000	20,000	25,000 plus
BB146/3R	20,000	25,000	25,000	30,000 plus
BB244/3R	25,000	30,000	30,000	35,000 plus
BB154/3R	22,500	30,000	30,000	35,000 plus
BB254/3R	30,000	40,000	40,000	50,000 plus
BB254H/3R	35,000	50,000	50,000	65,000 plus

Note: 1,000 litres stores approx. 30 kWhs

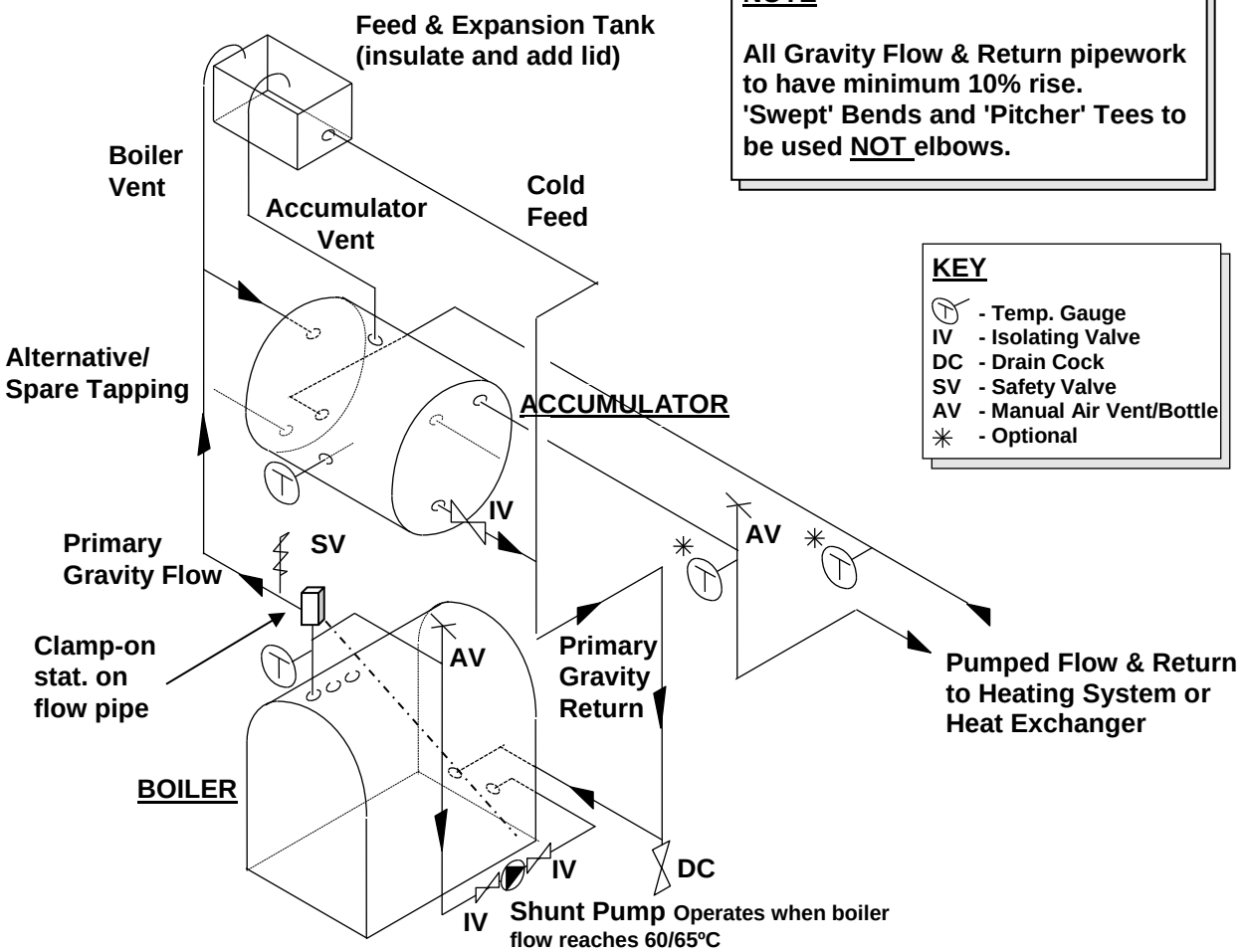
PUMP ASSISTED SEMI GRAVITY SYSTEM – *See page 14*



BOILER	HT26	HT36 HT46	HT50	HT60 HT70	HT80 BB144/3 BB154/3	BB244/3 BB254/3 BB254H/3
Recommended Pumped Primary Pipe Size (Min.)	1¼"	1½"	2"	2½"	3"	4"

Important: See also Typical boiler and accumulator system/remote system (pages 14 & 15)

GRAVITY ONLY ACCUMULATOR SYSTEM (no pump)



NOTE

All Gravity Flow & Return pipework to have minimum 10% rise.
'Swept' Bends and 'Pitcher' Tees to be used NOT elbows.

KEY

- Temp. Gauge
- IV - Isolating Valve
- DC - Drain Cock
- SV - Safety Valve
- AV - Manual Air Vent/Bottle
- ✳ - Optional

BOILER	HT26	HT36 HT46	HT50 HT60	HT70 HT80 BB144/244/154	BB254 BB254H
Recommended Gravity Primary Pipe Size (Min.)	2½"	3"	4"	5"	6"

General Notes:

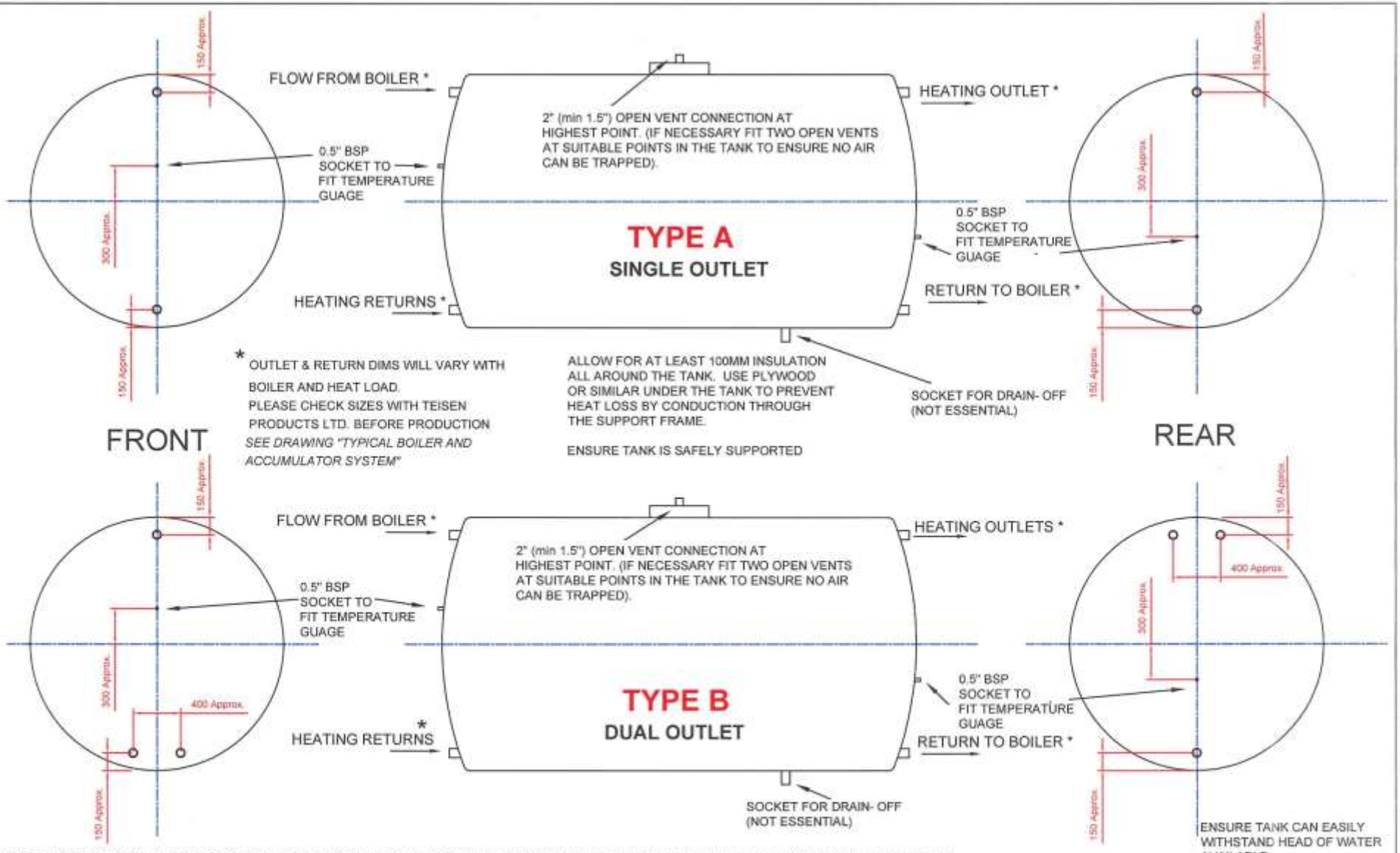
1. Galvanised F. & E. tank capacity at least 6% of total water content. Cold fill to at least 50mm depth.
2. Open vent at highest point. Boiler and accumulator ***must have*** continuously rising open vent.
3. Heat demand outlet to be at ***opposite end*** of tank from primary flow from boiler, and from opposite end of demand return. Return to boiler to be at ***opposite end*** of tank from primary flow.
4. Accumulator to have minimum 100mm glass wool insulation or equivalent spray foam on all surfaces.

   Recommended water capacity **as big as possible**, ideally at least 80litres/kW max.output of boiler.
   e.g. HT60 120kW 9600 litres minimum
   HT80 195kW 15600 litres minimum

   However if sizing for amount of heat stored in accumulator, allow 30kWhs output from 1000 litres, e.g. 9600 litres will store 288 kWhours
5. Accumulator must be raised fully above boiler if gravity circulation only is required (i.e. no pump).*
6. Boiler control thermostat should be set to approximately 85ºC. Primary pump should be set as high as possible without the boiler overheating (i.e. 75 ºC or above)

   * For pump assisted gravity system, i.e. accumulator on ground next to boiler, top of accumulator should preferably be at least 60cm above top of boiler, the higher the better.

See also Typical boiler and accumulator system/remote system (page 14 & 15)


FLOW FROM BOILER *
HEATING OUTLET *
2" (min 1.5") OPEN VENT CONNECTION AT HIGHEST POINT. (IF NECESSARY FIT TWO OPEN VENTS AT SUITABLE POINTS IN THE TANK TO ENSURE NO AIR CAN BE TRAPPED).
0.5" BSP SOCKET TO FIT TEMPERATURE GUAGE
TYPE A
SINGLE OUTLET
0.5" BSP SOCKET TO FIT TEMPERATURE GUAGE
HEATING RETURNS *
RETURN TO BOILER *
150 Approx.
300 Approx.
* OUTLET & RETURN DIMS WILL VARY WITH BOILER AND HEAT LOAD. PLEASE CHECK SIZES WITH TEISEN PRODUCTS LTD. BEFORE PRODUCTION SEE DRAWING "TYPICAL BOILER AND ACCUMULATOR SYSTEM"
ALLOW FOR AT LEAST 100MM INSULATION ALL AROUND THE TANK. USE PLYWOOD OR SIMILAR UNDER THE TANK TO PREVENT HEAT LOSS BY CONDUCTION THROUGH THE SUPPORT FRAME.
ENSURE TANK IS SAFELY SUPPORTED
SOCKET FOR DRAIN- OFF (NOT ESSENTIAL)
FRONT
REAR
FLOW FROM BOILER *
HEATING OUTLETS *
2" (min 1.5") OPEN VENT CONNECTION AT HIGHEST POINT. (IF NECESSARY FIT TWO OPEN VENTS AT SUITABLE POINTS IN THE TANK TO ENSURE NO AIR CAN BE TRAPPED).
0.5" BSP SOCKET TO FIT TEMPERATURE GUAGE
TYPE B
DUAL OUTLET
0.5" BSP SOCKET TO FIT TEMPERATURE GUAGE
HEATING RETURNS *
RETURN TO BOILER *
400 Approx.
SOCKET FOR DRAIN- OFF (NOT ESSENTIAL)
ENSURE TANK CAN EASILY WITHSTAND HEAD OF WATER AVAILABLE.
TEISEN PRODUCTS LTD. PROVIDE THIS DRAWING FOR GENERAL GUIDANCE ONLY, AND ACCEPT NO RESPONSIBILITY FOR ITS FUNCTION OR PERFORMANCE.
FARM2000
M&K PRODUCTS (BROMSGROVE) LTD
Dodford, Bromsgrove, Worcs. B61 9BT
Tel: 01527 821621 Fax: 01527 821665
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No. DATE ALTERATION
TITLE
TYPICAL HORIZONTAL ACCUMULATOR TANK
USED ON
DRAWN DATE MATL. SCALE
TLW 01/13 1:30
DRG. No.
A & B

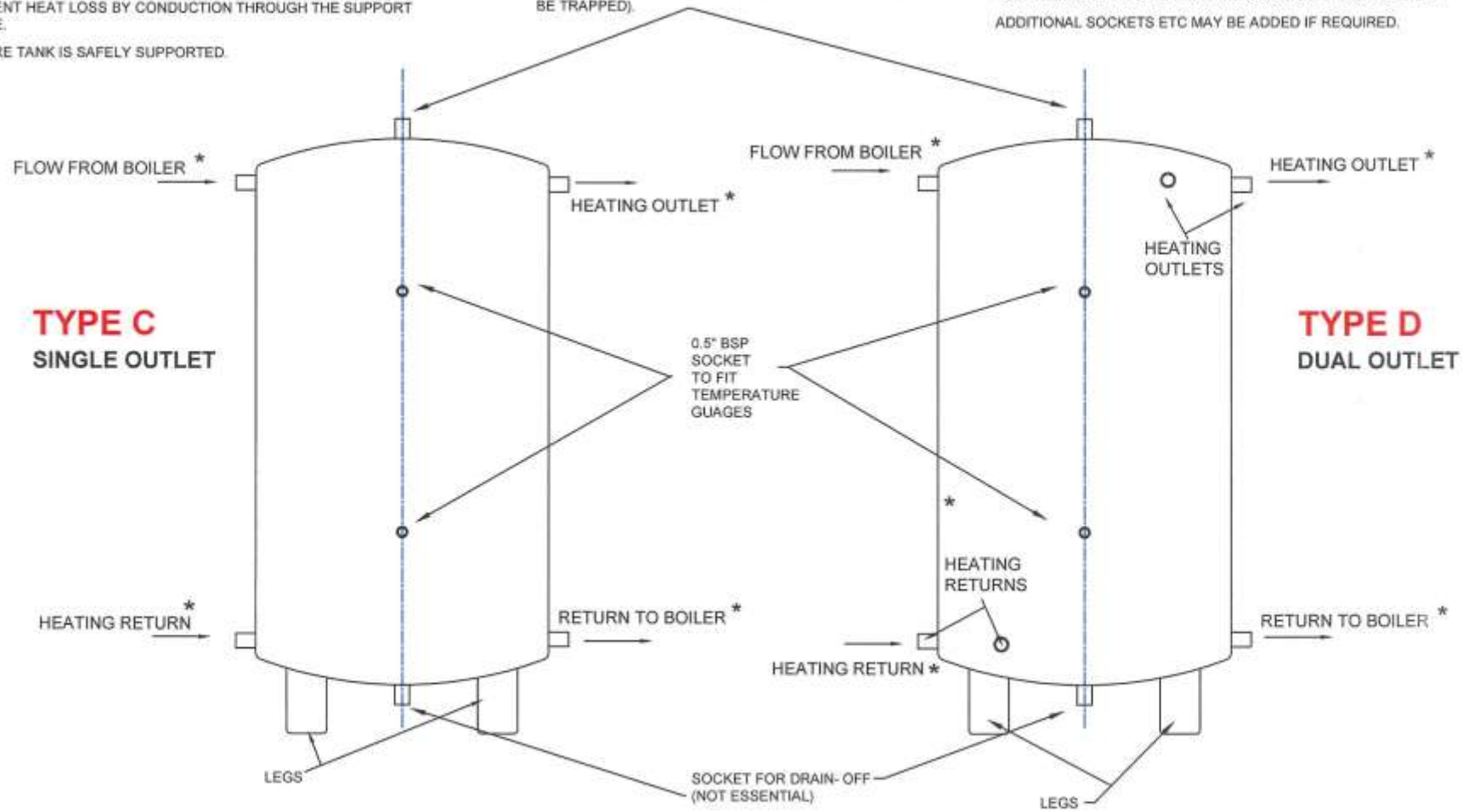
ENSURE TANK CAN EASILY WITHSTAND HEAD OF WATER AVAILABLE.

ALLOW FOR AT LEAST 100MM INSULATION ALL AROUND THE TANK. USE PLYWOOD OR SIMILAR UNDER THE TANK TO PREVENT HEAT LOSS BY CONDUCTION THROUGH THE SUPPORT FRAME.

ENSURE TANK IS SAFELY SUPPORTED.

2" (min 1.5") OPEN VENT CONNECTION AT HIGHEST POINT. (IF NECESSARY FIT TWO OPEN VENTS AT SUITABLE POINTS IN TANK TO ENSURE NO AIR CAN BE TRAPPED).

* OUTLET & RETURN DIMS WILL VARY WITH BOILER AND HEAT LOAD.
PLEASE CHECK SIZES WITH TEISEN PRODUCTS LTD. BEFORE PRODUCTION
SEE DRAWING "TYPICAL BOILER AND ACCUMULATOR SYSTEM"
ADDITIONAL SOCKETS ETC MAY BE ADDED IF REQUIRED.



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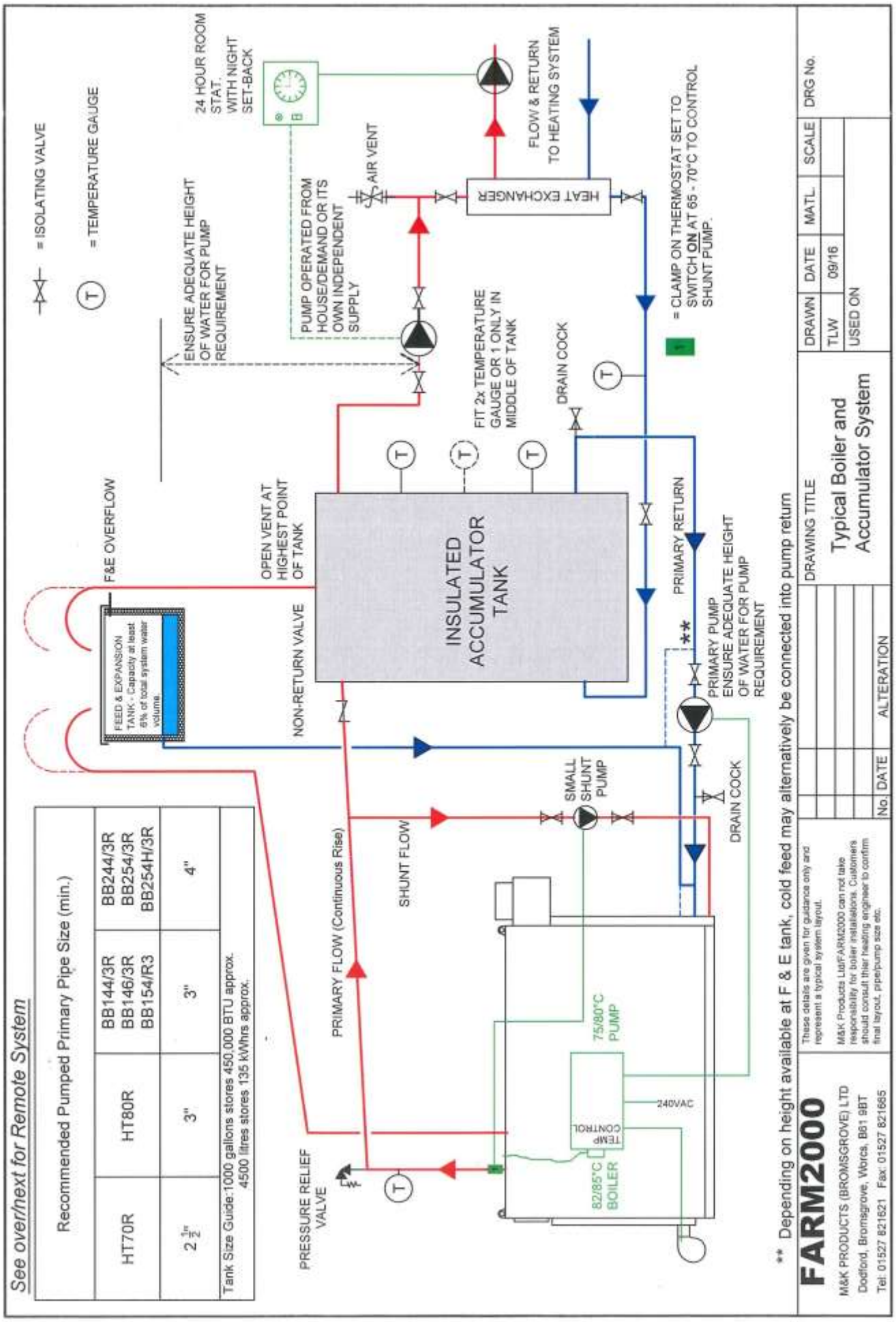
No.	DATE	ALTERATION

TITLE: TYPICAL VERTICAL ACCUMULATOR TANKS

DRAWN	DATE	MATL.	SCALE
TLW	01/13		1:30

USED ON

DRG. No. C & D


See over/next for Remote System
Recommended Pumped Primary Pipe Size (min.)
HT70R
HT80R
BB144/3R BB146/3R BB154/R3
BB244/3R BB254/3R BB254H/3R
2 1/2"
3"
3"
4"
Tank Size Guide:1000 gallons stores 450,000 BTU approx. 4500 litres stores 135 kWhrs approx.
= ISOLATING VALVE
= TEMPERATURE GAUGE
24 HOUR ROOM STAT. WITH NIGHT SET-BACK
ENSURE ADEQUATE HEIGHT OF WATER FOR PUMP REQUIREMENT
PUMP OPERATED FROM HOUSE/DEMAND OR ITS OWN INDEPENDENT SUPPLY
AIR VENT
HEAT EXCHANGER
FLOW & RETURN TO HEATING SYSTEM
= CLAMP ON THERMOSTAT SET TO SWITCH ON AT 65 - 70°C TO CONTROL SHUNT PUMP.
FIT 2x TEMPERATURE GAUGE OR 1 ONLY IN MIDDLE OF TANK
DRAIN COCK
F&E OVERFLOW
FEED & EXPANSION TANK - Capacity at least 6% of total system water volume.
OPEN VENT AT HIGHEST POINT OF TANK
INSULATED ACCUMULATOR TANK
NON-RETURN VALVE
PRIMARY RETURN
PRIMARY PUMP ENSURE ADEQUATE HEIGHT OF WATER FOR PUMP REQUIREMENT
**
SMALL SHUNT PUMP
SHUNT FLOW
PRIMARY FLOW (Continuous Rise)
DRAIN COCK
PRESSURE RELIEF VALVE
82/85°C BOILER
TEMP CONTROL
75/80°C PUMP
240VAC
** Depending on height available at F & E tank, cold feed may alternatively be connected into pump return
FARM2000
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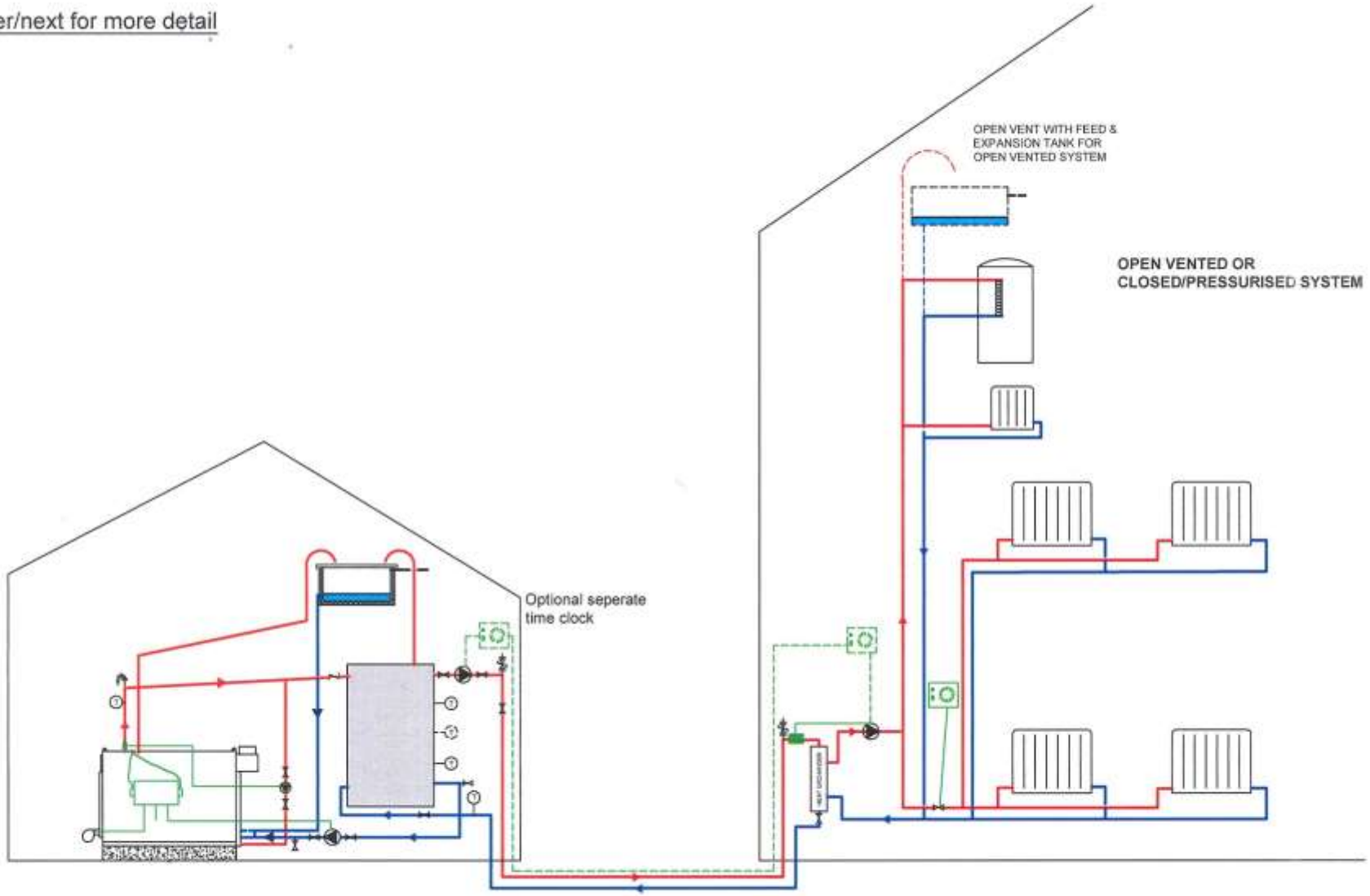
These details are given for guidance only and represent a typical system layout.
M&K Products Ltd/FARM2000 can not take responsibility for boiler installations. Customers should consult thier heating engineer to confirm final layout, pipe/pump size etc.
No. DATE ALTERATION
DRAWING TITLE
Typical Boiler and Accumulator System
DRAWN TLW
DATE 09/16
MATL.
SCALE
DRG No.
USED ON

See over/next for more detail



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These details are given for guidance only and represent a typical system layout.

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No.	DATE	ALTERATION

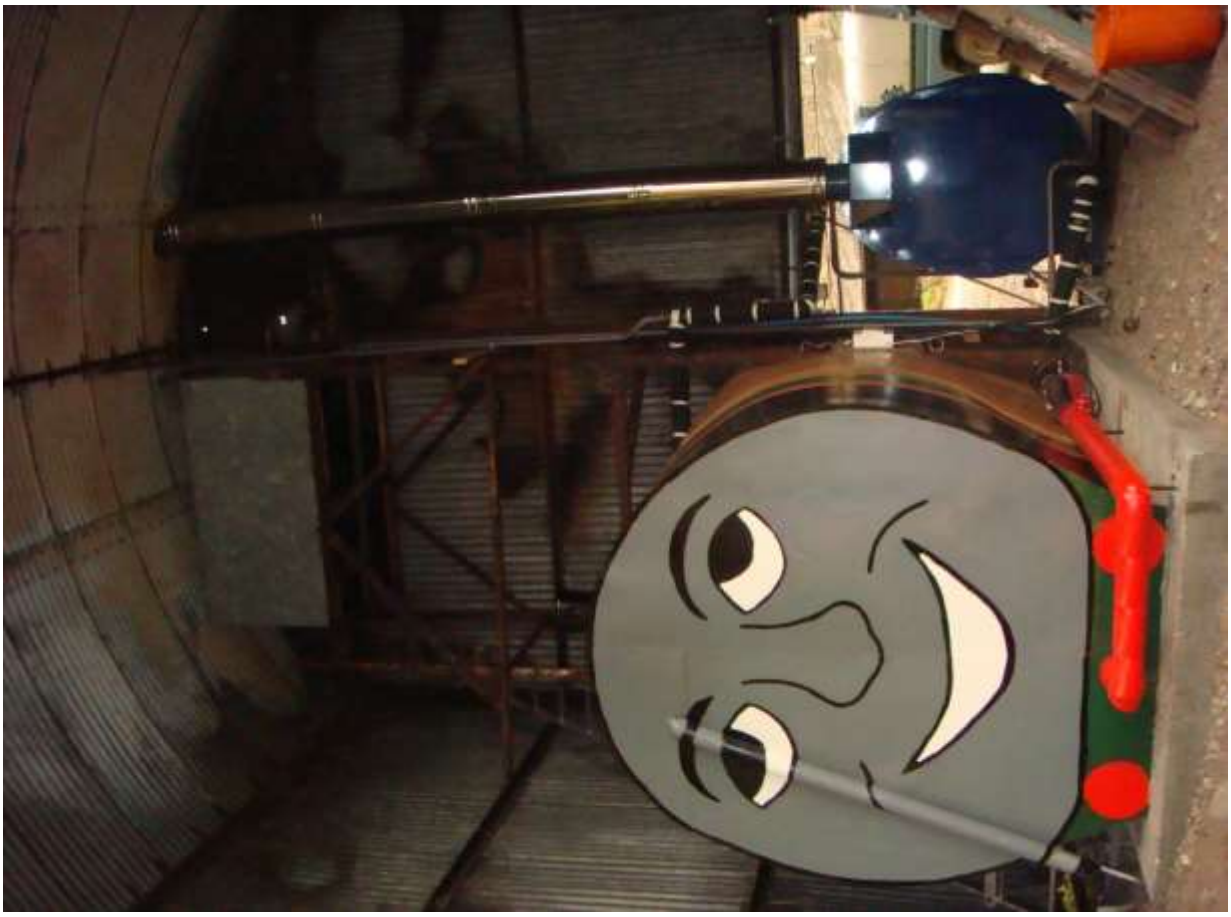
DRAWING TITLE
Typical Boiler and REMOTE Accumulator System

DRAWN	DATE	MATL.	SCALE	DRG No.
TLW	01/13			
USED ON				

Boiler and 2000 gallon (9000 litre) accumulator installation, prior to insulation at FARM2000, Bradley Green, Redditch

FARM2000 HT70 with accumulator

FARM2000 HT70 with accumulator




FARM 2000 ...the sensible way to heat a farmhouse.