

TENDER ISSUE

Technical Specification for a Biomass Boiler System
for
Aura Leisure Centre
Letterkenny

Prepared by David Palmer 7 May 2026

Checked by Alison Campbell 7 May 2026

Revision 3 20 May 2026

Revision 4 8 July 2026

1 INTRODUCTION

Aura Leisure Centre (ALC) previously operated a biomass system on site. This installation was entirely below ground level where it was susceptible to flooding. The system subsequently flooded and was abandoned. The flood risk has now been addressed. On this basis it is deemed possible to reuse the existing below-ground boilerhouse but it will require the biomass boiler to be installed at a raised Ground / Finished Floor Level.

It may also be possible to re-use the existing fuel store. The fuel store is to be investigated as to whether it can be reused. Any solution must ensure that it cannot flood again so as to harm the main boiler unit or expensive equipment. A sacrificial auger or pump at a lower level may be permissible. Tenders are to propose a fuel store solution which may require the complete replacement of the fuel store.

This Technical Specification covers specific technical aspects of the biomass installation to ensure optimum heat transfer from the biomass boiler into the ALC plantroom. The specification is necessarily prescriptive and tendering contractors are expected to follow this specification as detailed below. Any matters requiring clarification must be put in writing to Donegal County Council (DCC) on tenders as part of the tender process.

2 CONTRACT

TYPE OF CONTRACT

The contract is to be a design and build contract. The contractor will be responsible for the design of the biomass boilerhouse, thermal store and the modifications to the existing Aura Leisure Centre plantroom.

DESIGN LIABILITY

The contractor is required to take final design liability for the complete system including all the changes within the existing plantroom. This tender contains details of the new hydronic configuration and the additional components required. Tenderers are to satisfy themselves the components are both suitable and correctly sized. Tenderers are free to offer alternative equipment to the exact same specifications as the equipment suggested, and are to provide details of any and all alternatives with their tender response for approval by Donegal County Council. Once approved by the Council no further changes to equipment specifications will be permitted.

CONTRACTOR EXPERIENCE

It is essential that the contractor has experience of working in large low temperature hot water plantrooms, and the welding, forming and fitting of mild steel pipework up to 150mm diameter.

The contractor must also have significant experience of designing and installing biomass boilers of up to 500kW and walking-floor biomass fuel extract systems.

Tendering contractors are to provide evidence of their experience of work in large plantrooms and of biomass design and installation with their tender returns.

3 BIOMASS BOILER AND THERMAL STORE

BIOMASS BOILER

A 500kW biomass boiler and 10,000 litre thermal store are to be supplied and installed. The boiler is to be installed in an external boilerhouse, either in the existing boilerhouse or in a new surface-level boilerhouse.

The relatively constant and continuous load from ALC means the biomass boiler can be either an automatic ignition type or a permanently ignited boiler which drops into slumber mode when the ALC load is low.

The boiler is to be capable of operating continuously at a minimum flow temperature of 85C at a temperature differential of 10C. A boiler offering a higher flow temperature would be advantageous. The boiler is to meet the EN303-5 2012 standard. The boiler is to have a minimum turndown ratio of 3:1 and a minimum efficiency of 85%.

The boiler is to be fitted with a 3 bar safety valve.

The boiler is to be able to burn G30-40 woodchips at up to 30% moisture content to current Irish woodfuel standards as detailed on the website of the Irish Bioenergy Association (IrBEA).

THERMAL STORE

A 10,000 litre thermal store is required and is to be installed external to the biomass boilerhouse in order to minimise the size and cost of boilerhouse required. The thermal store is to be supplied complete with a safety valve, automatic air valve and drain cock, and is to be rated for operation up to 95C, a nominal operating pressure of 3 bar and is to be pressure tested to 6 bar.

The concrete footing for the thermal store is to be designed by a qualified structural engineer.

Once in position and connected, the thermal store is to be post-insulated with 100mm of spray foam insulation. Neither rockwool nor glass-wool insulation will be accepted.

External weatherproof cladding is to be applied to the insulated thermal store and interconnecting pipework between the biomass boilerhouse and thermal store.

4 WOODCHIP/WOOD PELLET FUEL STORAGE

The existing underground woodchip fuel store is to be inspected and consideration given as to whether it could be refurbished and reused. Any solution must ensure the fuel store cannot flood again. The fuel store and walking floor are to be inspected and a condition report included in the tender response. If the store can be reused a cost for refurbishing or replacing the walking floor is to be included in the tender. Tenderers are to propose a fuel store solution which could be the complete replacement of the existing fuel store and fuel extract system.

The fuel store is to be able to store for ten days' operation at peak load.

If the existing fuel store can be reused the existing horizontal fuel feed from walking floor to biomass boiler is to be removed and replaced. A drop-box is to be installed below the end of the cross-feed extract auger at the end of the walking floor, and a new rising auger is to be installed between the drop-box and the boilerhouse terminating in a rotary valve, the boiler fuel feed system then connecting to the rotary valve.

A mains water direct-acting thermostatic drench valve is to be installed on the rising auger.

5 BIOMASS FLUE HEIGHT

The highest point of the roof at ALS is 13m above ground level (agl), while the top of the highest air inlet is 11m agl. To ensure flue gases do not become entrained in the building's wake, the top of the flue is to be a minimum of 1.6 times the height of the top of the highest air inlet. Hence, the top of the flue is to be at 17.6m above the ground level of ALC.

The flue is to be supported by a tubular or triangular lattice mast. A qualified structural engineer is to undertake wind loading calculations and design the mast and its concrete footing. A cost for the structural engineer, concrete footing, mast and its installation is to be included in the tender.

6 NEW BOILERHOUSE

The exact location for the new boilerhouse, and the orientation of the boiler within the boilerhouse, will be determined by the geometry of the rising auger from walking floor to boilerhouse, and the locations of the new boilerhouse and fuel store.

Tenderers are to carry out a condition survey of the existing below-ground boilerhouse and consider whether it could be reused if it is filled-in to ground level to form a new concrete floor. Should tenderers not consider it feasible to reuse the existing boilerhouse they are to include a detailed proposal on their preferred boilerhouse option to include plan and elevation sketches, details of equipment access requirements, the location of ventilation grilles (together with a calculation of the grille area required), personnel and emergency exits.

BOILERHOUSE VENTILATION

Ventilation louvres must be provided for both combustion air and boilerhouse cooling:

A minimum of 550mm² of free area per kW of boiler rating is required for combustion air. Using standard ventilation grilles with 70% free area will require 0.3m² of grille area. This should be installed at low level in the boilerhouse, preferably split between two grilles on opposite sides of the boilerhouse;

Further grilles should be installed to a total of 550mm² of free area at high level to provide cross-flow ventilation to remove heat from the boilerhouse. A proposal for the size of these grilles is to be included in the tender response, and any variation to the proposed size is to be included in the tender for approval.

DRAINAGE

Floor drains in the boilerhouse are to be connected to the ALC foul drainage system

Drainage provision is to be made in the event the thermal store is to be drained-down, again with a connection to the ALC foul drainage system

If a new boilerhouse is to be installed the concrete footing must be designed by a qualified structural engineer.

Tenderers are to include their preferred boilerhouse solution in their tender

A plan sketch showing the position and size of the boilerhouse relative to the fuel store and ALS is to be included in the tender.

SERVICES TO THE BIOMASS BOILERHOUSE

The following services are required at the new biomass boilerhouse:

Three-phase electrical power to be laid on one side of the pipe trench between the biomass boilerhouse and ALC plantroom (see External underground pipework below);

Mains cold water;

A connection to the ALC foul drainage system;

A Category 6 communications connection to the ALC BMS to carry Mbus/Modbus communications;

Separate communications cables for connecting the carbon monoxide detector, heat detector, and the common fault signal from the biomass boiler to the ALC BMS;

All communication cables are to be segregated from the three-phase power cable by installing them inside metal conduits on the opposite side of the pipe trench to the electrical power wiring. Conduits are to be bonded to earth at the ALC plantroom end only;

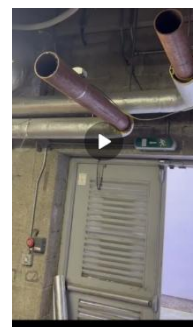
External lighting for access to the fuel store and boilerhouse;

If required, new underground pipework to connect the biomass system to the ALC plantroom.

7 EXISTING EXTERNAL UNDERGROUND PIPEWORK

Modelling of the hydronic system flows and temperatures suggests the average operating temperature on the flow pipe to the ALC plantroom to be vary from 85C to 76C. The modelling tool will be made available to the successful contractor once the contract has been let.

The existing underground pipework has been cut-back where it enters the ALC plantroom (photograph). The successful contractor is to flush this pipework between the existing biomass boilerhouse and the ALC plantroom, then pressure test each to pipe to 6 bar to confirm their integrity. Tenderers are to advise, at the tender stage, whether they believe this pipework can be reused.



If the pipework cannot be reused a new pipe trench is to be formed between the biomass boilerhouse and the ALC plantroom. Pre-insulated district heating pipework, REHAU Rauthermex or similar, is to be laid in two continuous lengths (without joints) between the biomass boilerhouse and ALC plantroom. It is to be installed in accordance with the manufacturer's detailed installation instructions, including the entry and exit points from biomass boilerhouse to ALC plantroom. It must be of sufficient depth, construction and back-fill to protect the pipework from heavy good vehicles containing up to 20 tonnes of woodchip or wood pellet fuel, and with a significantly greater total weight, which will drive over it at up to once per week for fuel deliveries. A qualified structural engineer is to be consulted to ensure the completed trench/pipe/backfill system meets the appropriate construction standard. The roadway is to be finished to the same standard as existing.

8 HYDRONIC SCHEMATIC

The drawing "Aura Hydronic Schematic Rev 1, 7 May 26" contains details of the components required in the biomass boilerhouse and ALC plantroom, the operating temperatures and flow rates, and the work required within the ALC plantroom. Specific considerations on the schematic are:

The system is to be designed to operate at a minimum flow temperature of 85C and with a 10C temperature differential between flow and return;

Two heat meters are to be installed, one on the biomass system output, and one on the return pipe to the oil boilers. Both heat meters are to be installed in the ALC plantroom;

Heat meter calculator/display units are to be mounted at a height of 1.5m above floor level to allow them to be read and interrogated safely. The heat meters have been specified with sufficient length on the temperature sensor leads that they can be mounted in accessible positions;

A dosing pot is to be installed in the biomass boilerhouse to allow for chemical dosing of the system to remove dissolved gases during commissioning and the inhibit corrosion;

A combined dirt and air separator is to be installed at high level in the ALC plantroom on the DN75 pipe from the return header to the return to the biomass system. Installation in this location is essential to prevent dirt from the ALC plantroom passing into the return to the thermal store, and at high level to separate air from the overall system;

A carbon monoxide sensor and heat sensor are to be installed in the biomass boilerhouse, and wired back to the ALC BMS system;

An orange flashing beacon is to be installed on the outside of the boilerhouse to be activated in the event either the carbon monoxide alarm or heat sensor is activated;

The biomass injection pump is to be installed at high level in the ALC plantroom close to where the flow pipe of the existing underground pipework enters the ALC plantroom. The pump is to be controlled through the BMS via a temperature sensor on the DN150 return line to the oil boilers immediately prior to the boilers;

The schematic of the biomass boiler system is an outline schematic only. The following are to be included in the biomass boilerhouse and thermal store:

Automatic air valves, drain cocks, temperature gauges, pressure gauges and boiler safety valve.

All other components are to be installed as shown on the schematic drawing.

9 PRESSURISATION SYSTEM

The existing pressurisation system in the ALC plantroom is to be replaced in its entirety with a new system with capacity to support both the leisure centre and biomass system. The system will operate at a maximum pressure of 2.5bar.

Extensive work has been carried out to assess the water content of the existing system and provisionally to size a new system. Full details of the calculations and analysis are contained in Appendix A.

10 NEW EQUIPMENT REQUIRED IN ADDITION TO THE BIOMASS SYSTEM

BIOMASS INJECTION PUMP

Grundfos Magna 3 65-150F to the specification in the accompanying data sheet

This pump has been selected on the basis of an operating point of 11.9kg/s @ 60kPa. The contractor is required to carry out a detailed pressure loss calculation for the biomass injection circuit from the 150mm return header, new DN75 pipework, through the dirt-air separator, biomass heat meter, existing underground pipework, thermal store, back through the existing underground pipework, and new DN75 pipework to the existing flange on the return header. Should this demonstrate that the specified pump has insufficient pressure capacity, a new pump selection is to be made and referred back to Donegal County Council for validation.

Should an alternative pump be offered it must include all of the features containing in the associated Grundfos product data sheet (which forms part of this tender).

PRESSURISATION SYSTEM

The recommended equipment is:

Pressurisation Unit: FLAMCO Flexfiller 225D, FLAMCO Product Data Sheet 2025/10/15

Three expansion vessels: FLAMCO Flexcon 1000/1.5, 6 bar, 110C, FLAMCO Product Data Sheet 2026/04/14

FLAMCO equipment is supplied in the UK and Ireland by:

Aalberts hydronic flow control Limited
Washway Lane / UK-WA10 6PB St Helens, Merseyside
+44 1744 744744
uk.info@aalberts-hfc.com
aalberts-hfc.com / flamco.co.uk

THERMAL STORE

Tenderers are required to supply information about their proposed thermal store for approval by Donegal County Council. Internal sketches of the thermal store are required as the internal design of thermal stores varies considerably between different suppliers. In addition to their usual supplier tenderers are invited to obtain a quotation from Sean Gilbride of Meridian-Vortex, a specialist thermal store manufacturer:

Meridian-Vortex Ltd
Scarton House
Priory Court
Kildare Town
Co Kildare

Tel: 053 9192144
info@meridian-vortex.com
www.meridian-vortex.com

HEAT METERS

Two new heat meters are required, one to replace the existing faulty unit, and another for the biomass system. Full details are in the quotation which forms part of this specification. The recommended equipment is:

Total system output heat meter - Kamstrup 603 and Ultraflow 85 flow sensor

PN16 flanged Kamstrup Ultrasonic flow meter, Ultraflow 85, Q_p 150m³/h, 500mm installed length

Kamstrup 603 calculator/integrator unit complete with 10m temperature sensors, stainless steel pockets, wall bracket, Mbus/Modbus communications module and mains power supply

Biomass heat meter – Kamstrup 603 and Ultraflow 54 flow sensor

PN25 flanged Kamstrup Ultrasonic flow meter, Ultraflow 54, Q_p 40m³/h, 300mm installed length

Kamstrup 603 calculator/integrator unit complete with 1,5m temperature sensors, stainless steel pockets, wall bracket, Mbus/Modbus communications module and mains power supply

DIRT-AIR SEPARATOR

Spirotech Spiro-Combi DN65

DOSING POT

FLAMCO 25 litre dosing pot

ALTERNATIVE EQUIPMENT

Tenderers are free to offer alternative equipment to the exact same specifications as the equipment suggested, and are to provide details of any and all alternatives with their tender response for approval by Donegal County Council. Once approved by the Council no further changes to equipment specifications will be permitted.

11 CONTROLS AND ALARMS

CONTROLS SUB-CONTRACTOR

A controls sub-contractor, to be approved by Donegal County Council, is to be appointed to carry out any and all controls work external to the biomass boilerhouse.

VOLT-FREE CONTACTS

The follows controls and alarm interconnections are required in the form of volt-free contacts:

Common fault alarms from the biomass boiler and pressurisation set are to be extended to the ALC plantroom from where the ALC BMS engineer will integrate them into the BMS;

Similarly the carbon monoxide alarm is to be extended to the BMS;

The heat sensor is to be extended to the ALC plantroom where it will be connected to the ALC fire alarm system by an ALC engineer;

If the boiler has an external digital interface ALC and DCC will consider whether to integrate it into the BMS using the Category 6 cable installed for this purpose.

HEAT METERS

The Mbus/Modbus outputs from the two heat meters are to be used to display the following parameters on a dedicated BMS graphics page:

- Accumulated energy (MWh)
- Power (kW)
- Flow temperature (C)
- Return temperature (C)
- Temperature difference (K)
- Flow rate (in both m³/h and l/s)

Additionally SEAI requires they be able to read the heat meters remotely where the facility can be made available. The controls engineer for the successful contractor is to liaise with SEAI to enable this feature.

BIOMASS INJECTION PUMP

The biomass injection pump is to be speed controlled to maintain a temperature setpoint as measured on the DN150 return pipe immediately prior to the oil boilers.

The temperature setpoint associated with this sensor is to be user adjustable on a BMS graphics page.

The pump is to be set for a maximum flow rate of 11.9kg/s and is to operate at this flow rate until the temperature setpoint is exceeded. Thereafter the pump speed is to be adjusted to maintain the temperature entering the oil boilers at the setpoint value.

BMS GRAPHICS

The controls engineer is to update the BMS graphics to reflect the hydronic schematic configuration shown in the schematic drawing accompanying this specification.

12 HEALTH AND SAFETY

Please refer to the *Preliminary Health and Safety Plan* in the tender documents. Donegal County Council will act as The Project Supervisor Design Process PSDP for the project. The successful Contractor will be appointed as the Project Supervisor Construction Stage PSCS for the construction and delivery of the project.

The fuel store is a confined space and any personnel working in it must be confined space trained. **As part of the delivery of the project Permanent engraved notices are required outside the fuel store stating it is a confined space and warning unauthorised personnel are not to enter it.**

A permanent engraved notice is to be placed out the boilerhouse beneath the flashing amber beacon stating that nobody is to enter the boilerhouse when the beacon is flashing.

Another permanent engraved notice is to be placed on the boilerhouse door stating that only authorised personnel are permitted to enter the boilerhouse.

13 SYSTEM DESIGN APPROVAL

A complete set of system design drawings is required. These are to comprise:

Plan and elevation layout drawings of the biomass boilerhouse, thermal store and flue system, the fuel store and pipe trench in relation to ALC;

Detailed drawings of the flue system including support mast and flue showing the size of each flue component;

Detailed plan and elevation layout drawings of the boilerhouse;

Detailed plan and sectional drawings of the trench showing the location and depth of pipework, mains cabling and communications cabling;

Detailed plan and elevation drawings of the pipe and cable entries into the ALC plantroom and the pipework layout in the plantroom up to the DN150 return header;

A fully designed and detailed schematic drawing of the biomass system detailing pipe sizes and the selected components (pumps, valves etc) marked against each component

The circuit power, flow rate, pressure drop and pipe size are to be marked at each key point of the drawing set out around a cross as shown here;

$\frac{\text{kW}}{\Delta P}$	$\frac{\text{kg/s}}{\phi}$
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A separate list of all equipment and associated data sheets to be installed in the boilerhouse and ALC plantroom;

A complete set of drawings and details of all proposed components are to be submitted to DCC for approval prior to the commencement of construction.

14 COMMISSIONING

Commissioning of the combined biomass system and re-engineered ALC plantroom will take place in two stages:

The biomass contractor is to commission the biomass system up to the thermal store but without any heat being drawn from the biomass system at this stage;

The reconfigured ALC plantroom will then be commissioned together with the biomass system;

Donegal County Council may wish to have an independent specialist design engineer in attendance for the commissioning.

15 DOCUMENTS FORMING THIS TECHNICAL SPECIFICATION

This technical specification comprises:

This specification document including its Appendix

Aura Hydronic Schematic Rev 1, 7 May 26

9792499 MAGNA3 65-150F pump specification

KAMSTRUP MULTICAL 603 Data Sheet

KAMSTRUP ULTRAFLOW 85 DN150-300 Data Sheet

Kamstrup 54 DN15-15 Data Sheet

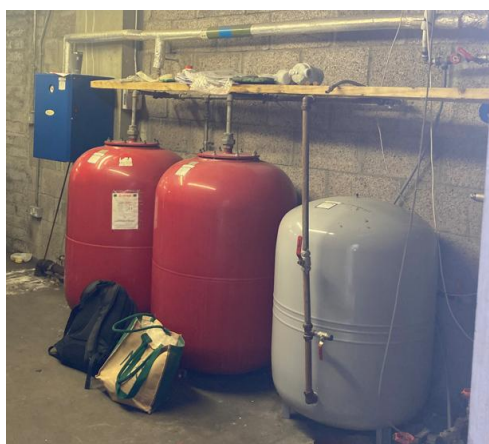
FLAMCO Pressurisation Unit Flexfiller 225D

FLAMCO Flexcon 1000/1.5 Expansion Vessels

APPENDIX A – NEW PRESSURISATION SYSTEM

BACKGROUND

The existing pressurisation system comprises an analogue pressurisation unit and three x 500 litre expansion vessels (EVs). The pressurisation system was originally designed to operate with two x 500 litre EVs, while a third was added when the original biomass system was installed – the biomass obtaining its pressurisation from the leisure centre.



The existing pressurisation unit

Pressurisation unit and 3 x 500 litre expansion vessels

The settings on the existing unit are:

Cold fill	2 bar
High pressure alarm	3 bar
Low pressure alarm	0.5 bar



However, the current indicated final working pressure is 1.05 bar – shown above. No information is available on the system water of the leisure centre.

REVERSE DESIGN ANALYSIS TO ESTIMATE THE EXISTING SYSTEM WATER CONTENT BASED ON TWO EXPANSION VESSELS

It is usual to design EVs for a 35% acceptance, with lower and upper limits of 30% and 40%. 35% acceptance on 2 x 500 litre EVs = 350 litres, while the figures for 30% acceptance and 40% acceptance are 300 litres and 400 litres respectively. A table for the expansion of water is given in CIBSE Guide C:

Table 4.8 Expansion of water at different temperatures, relative to the volume at 4°C, in percentages

T/°C	40	50	60	70	80	90	100	110	120
%	0.786	1.21	1.71	2.27	2.90	3.63	4.34	5.20	6.00
T/°C	130	140	150	160	170	180	190	200	
%	7.00	8.00	9.10	10.2	11.4	12.8	14.2	15.7	

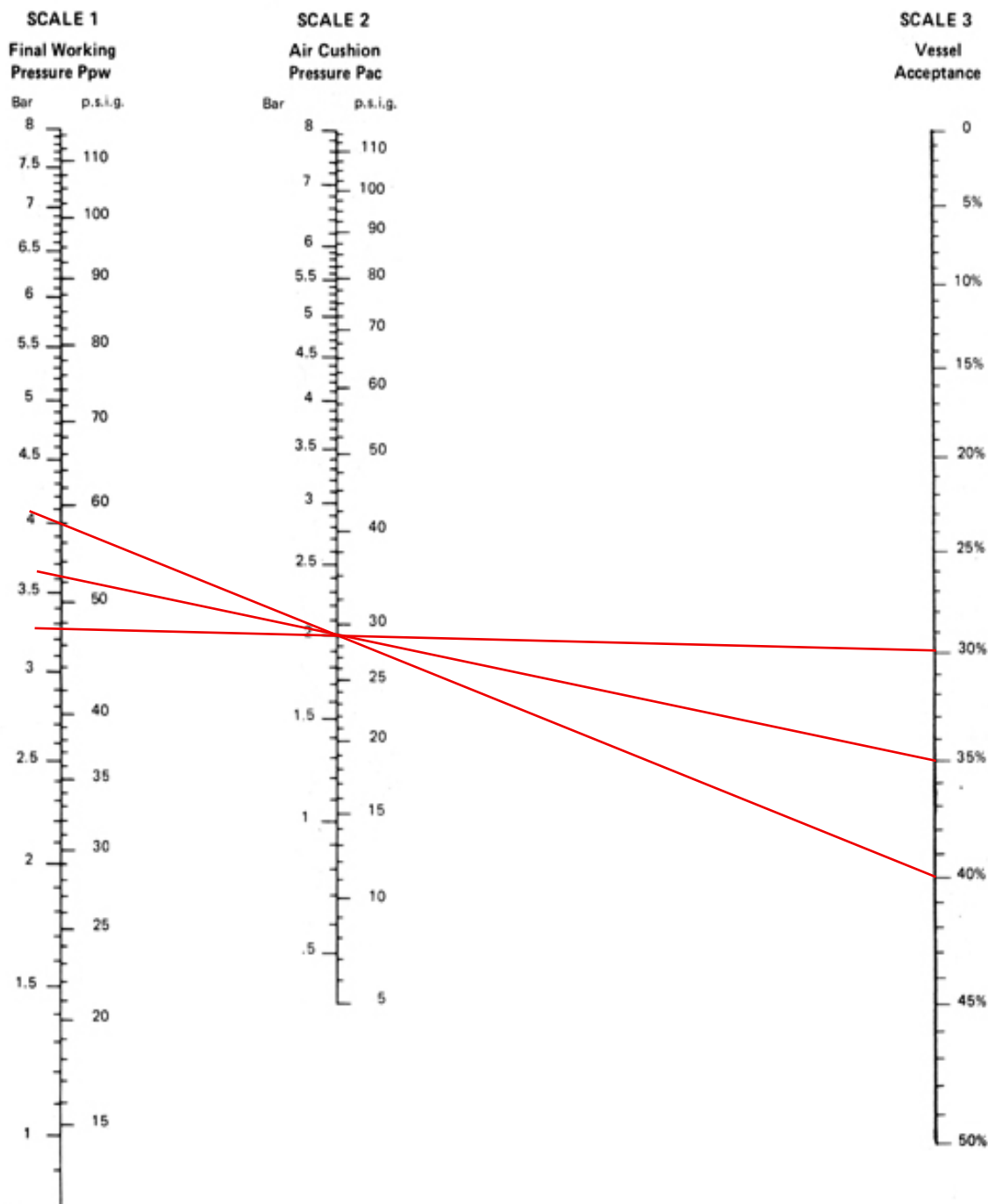
Water expansion at an assumed design operating temperature of 80C is 2.9% giving estimated system water contents of:

300 litres ÷ 2.9% = 10,350 litres at 30% EV acceptance

350 litres ÷ 2.9% = 12,050 litres at 35% EV acceptance

400 litres ÷ 2.9% = 13,800 litres at 40% EV acceptance

The expansion vessel sizing chart has three scales: Final Working Pressure; Air Cushion Pressure; and Vessel Acceptance. The cold fill pressure is selected on the Air Cushion Pressure scale after which the air cushion pressure on the expansion vessels **MUST BE SET TO THIS VALUE**. Plotting data from the above values onto the chart shows that with a cold fill pressure of 2 bar show that a final working pressure of 3 bar would be exceeded for any value of EV acceptance between 30% and 40%, and indicates that the cold fill pressure setting on the existing pressurisation set is incorrect.



Returning to the estimation of system water volume, the total load on the leisure centre is 2.73MW. The system water content per kW for acceptances from 30% to 40% would be:

10,350 litres ÷ 2,730 = 3.8l/kW at 30% EV acceptance
 12,050 litres ÷ 2,730 = 4.4l/kW at 35% EV acceptance
 13,800 litres ÷ 2,730 = 5.05l/kW at 40% EV acceptance

For the purpose of estimation with a safety margin it is recommended that a system water content of 15,000 litres be used.

INDICATIVE ESTIMATION OF THE SYSTEM WATER CONTENT OF A NEW 500KW BIOMASS SYSTEM AND 10,000 LITRE THERMAL STORE AND WATER CONTENT OF LEISURE CENTRE PLUS BIOMASS SYSTEM

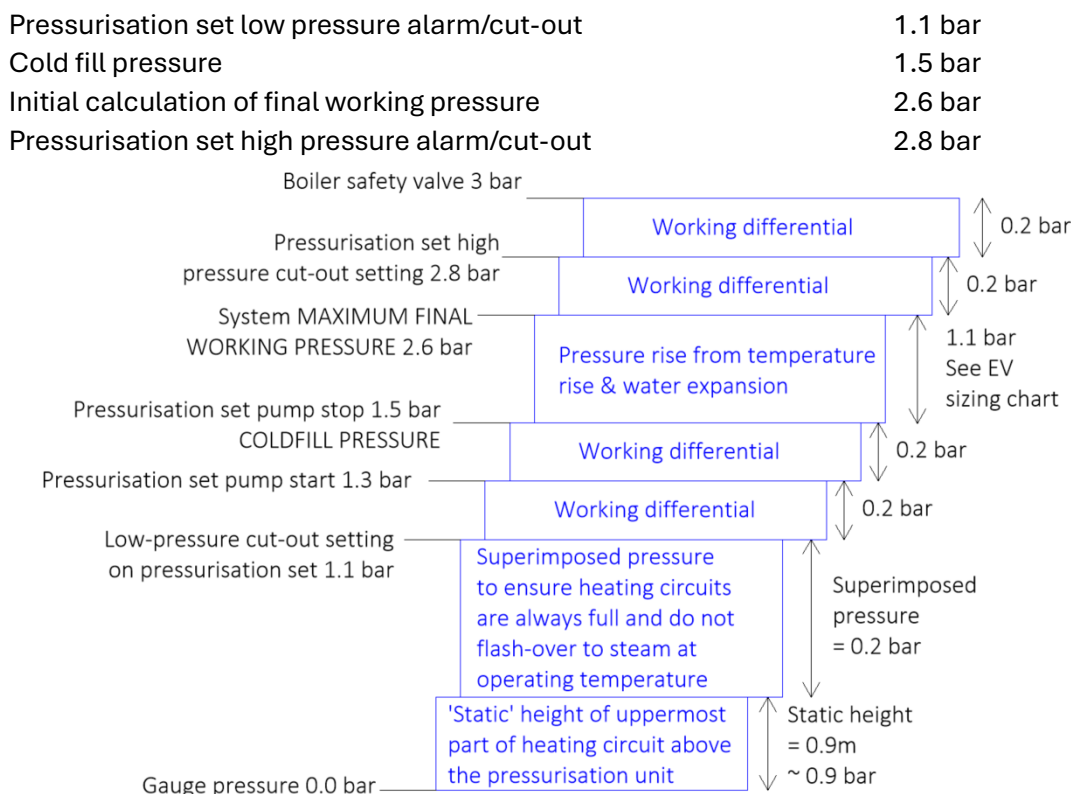
For the purpose of estimating the total EV capacity required, the following figures have been used to estimate the water volume in the biomass system:

500kW biomass boiler	1,500l	
Biomass boilerhouse	1,500l	includes external pipework to plantroom
Thermal store	<u>10,000l</u>	
TOTAL	<u>13,000l</u>	

Hence, the estimated total water content of the leisure centre plus new biomass system, including a safety margin, to be used for EV sizing = 15,000l + 13,000l = 28,000l.

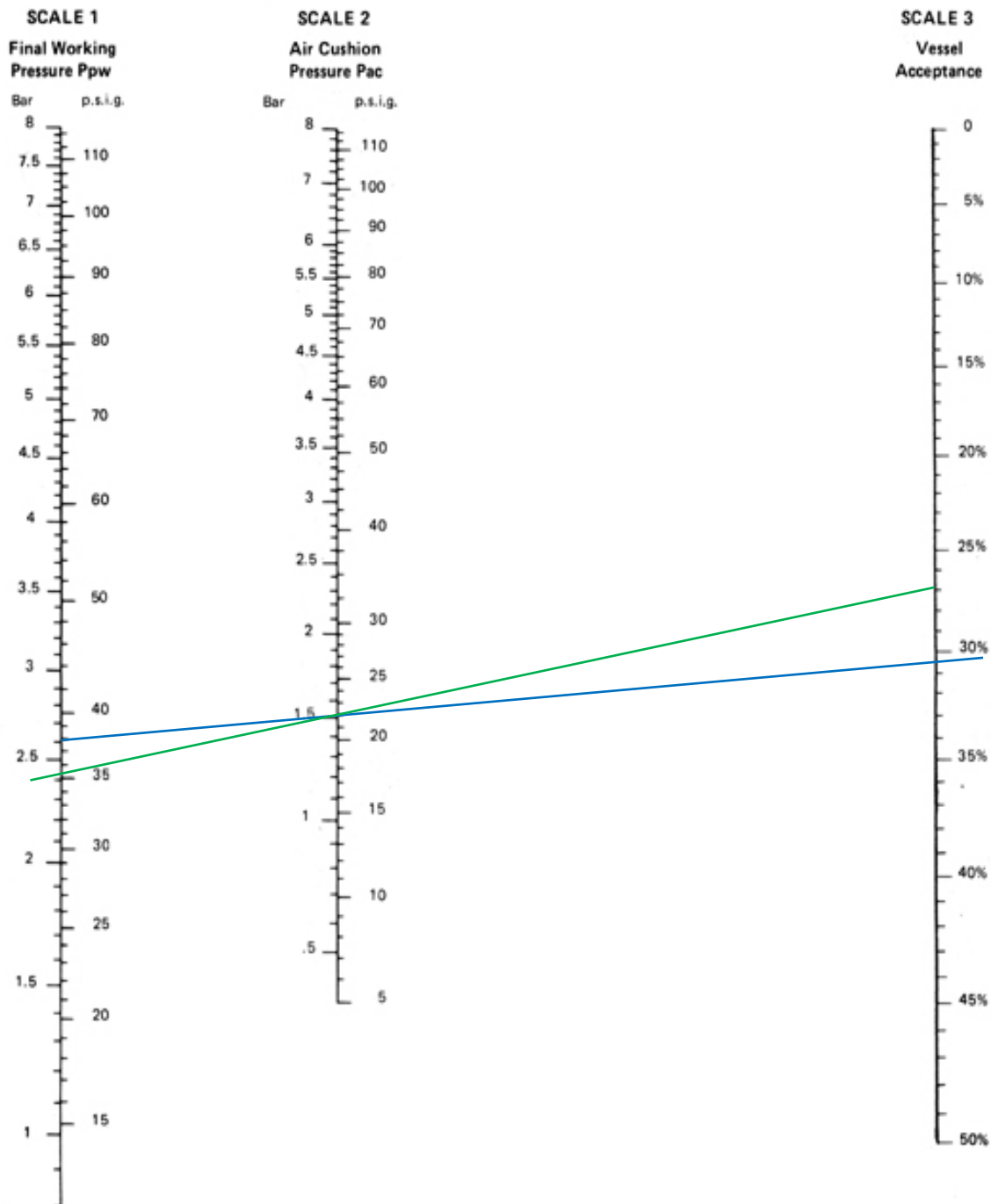
INITIAL CALCULATION OF PRESSURISATION SYSTEM SETTINGS

A replacement pressurisation unit should be mounted 1m above floor level, while the highest point of the hydronic system is 10m above ground level. The following chart shows the pressurisation set points to be used for the new system:

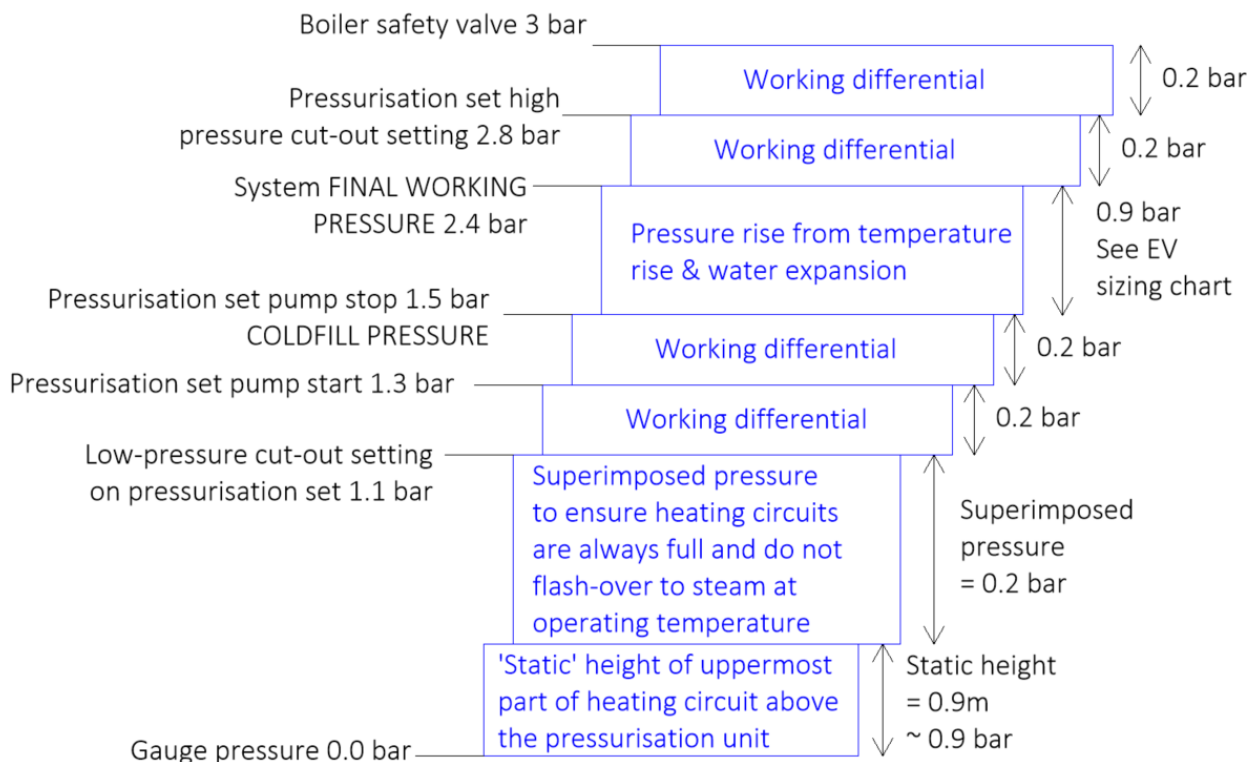


EXPANSION VESSEL SIZING CHART FOR THE COMBINED LEISURE CENTRE AND BIOMASS SYSTEM AND FINAL SYSTEM PRESSURES

Using the chart below and plotting a line (blue line) from the design maximum final working pressure of 2.6 bar through a cold fill pressure of 1.5 bar through to the vessel acceptance scale gives a vessel acceptance of 30.5%. The water expansion with a system volume of 28,000 litres at 80C = 2.9% or $28,000 \times 2.9\% = 812$ litres. At 30.5% acceptance this requires a total EV volume = $812 \text{ litres} \div 30.5\% = 2,660$ litres. This will require three x 1,000 litre EVs. On this basis the final acceptance will be $812 \text{ litres} \div 3,000 \text{ litres} = 27\%$ and the actual final working pressure will be 2.4 bar (green line).



With 3,000 litres of EVs the final system pressures will be:



PRESSURISATION SYSTEM EQUIPMENT

The existing analogue pressurisation unit is to be removed and discarded together with all three existing expansion vessels. The existing expansion vessels are to be retained and offered back to Aura Leisure Centre/Donegal County Council as spares.

In order to minimise space within the leisure centre plantroom Aura Leisure Centre requires that the replacement expansion vessels have a floor footprint approximately equal to those being removed. A new pressurisation unit and three x 1,000 litre expansion vessels are to be supplied, installed and commissioned.

A pressurisation set and expansion vessels from Flamco are recommended. Should the contractor offer alternative equipment, it must be EQUAL and APPROVED. Full details any alternative equipment are to be supplied with the tender return for approval by Aura Leisure Centre. It is particularly important that tall and narrow expansion vessel (2,268mm high x 790mm diameter) be used to meet the footprint requirement. The recommended equipment is:

Pressurisation Unit FLAMCO Flexfiller 225D, FLAMCO Product Data Sheet 2025/10/15

Three expansion vessels FLAMCO Flexcon 1000/1.5, 6 bar, 110C, FLAMCO Product Data Sheet 2026/04/14

FLAMCO equipment is supplied in the UK and Ireland by:

Aalberts hydronic flow control Limited
Washway Lane / UK-WA10 6PB St Helens, Merseyside
+44 1744 744744
uk.info@aalberts-hfc.com
aalberts-hfc.com / flamco.co.uk

INSTALLATION

The new pressurisation unit is to be mounted in the space vacated by the existing pressurisation set, and with the base of the unit 1m above floor level.

The pressurisation unit is to be connected to the plantroom return header using the existing 22mm pipework via a new 22mm lever valve. This valve is to be the only isolating valve between the return header and the pressurisation unit/expansion vessels.

New pipework is required from the pressurisation unit to the expansion vessels.

Once connected and the system filled, the OPERATING LEVER OF THE ISOLATING VALVE MUST BE REMOVED AND STORED AWAY FROM THE PRESSURISATION SYSTEM to ensure that the system cannot inadvertently be isolated from the return header during use.

The system pressures are to be set up on the pressurisation unit as follows:

Pressurisation unit low pressure alarm/cut-out	1.1 bar
Cold fill pressure	1.5 bar
Pressurisation set high pressure alarm/cut-out	2.8 bar

A MODBUS connection is to be made between the pressurisation unit and the building management system (BMS) where a graphics page is to display the system pressures and any alarm warnings.

The following volt-free contacts are to be integrated into the BMS:

- Common fault alarm (N/C)
- High Pressure Alarm (N/O)
- Low Pressure Alarm (N/O)
- Sensor Health (N/O)
- Pump Health (N/O)

Details of how these alarms are to be used are given in the Controls section of the specification.