

ARMSTRONG



Fully Integrated Low Carbon LTHW
Commercial Heating Solutions

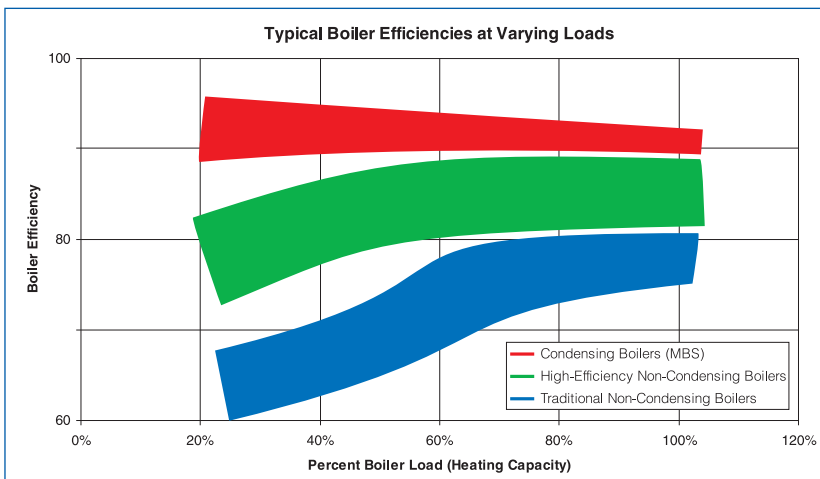
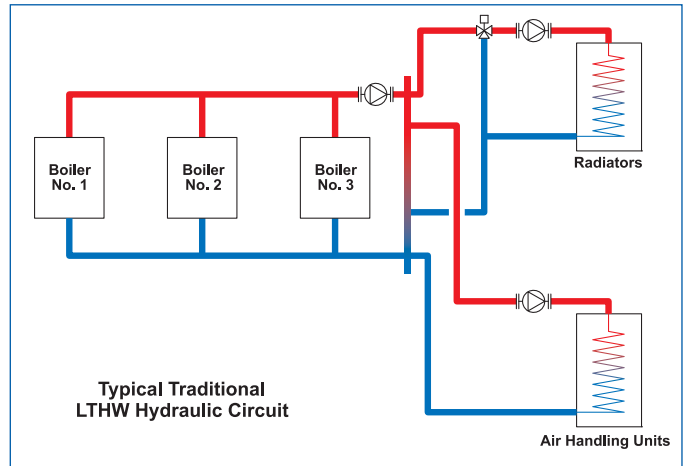
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► The Challenge

With the recent implementation of new efficiency standards such as the United Kingdom's Part L of the Building Regulations or Title 24 of the California Code of Regulations: Energy Efficiency Standards for Residential and Nonresidential Buildings, engineers are increasingly looking to condensing boilers to help achieve or even exceed the seasonal efficiencies stipulated. However, whether it's new build (Part L2A) or refurbishment (Part L2B) it is essential that condensing boilers are not just considered in isolation as an intelligent sub-system. Rather, they should be seen as part of a fully integrated system that matches pumps, controls and hydraulic system design.

Until recently, mismatched system components, traditional hydraulic system design and on/off boiler sequencing philosophies meant that much of the potential energy savings and carbon reductions that condensing boilers offer was not realised.

Traditional hydraulic circuits employ a boiler primary circuit with a low loss header separating the secondary circuits. This design maintains minimum flows across the boilers but wastes energy by constantly re-heating the return water and reducing the temperature differential in low load conditions.



Conventional boiler sequencing philosophies also waste energy when used on condensing boilers. Unlike conventional boilers, condensing boilers are more efficient at low load. So, by conventionally sequencing each boiler in turn up to maximum load, condensing boilers could be operating at efficiency levels well below their design efficiency.

To gain maximum efficiencies from condensing boiler technology, multiple boilers should be run and modulated in unison so that ALL boilers run

together at the lowest possible firing rate to meet the load required without excessive cycling. The pump should also be matched to maintain minimum boiler flow rates and an optimum temperature differential of 20°C (36°F).

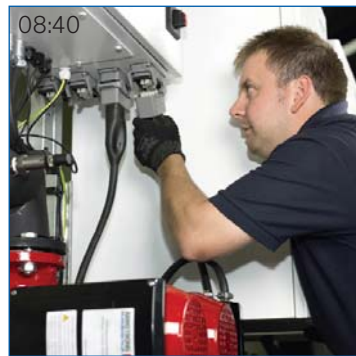
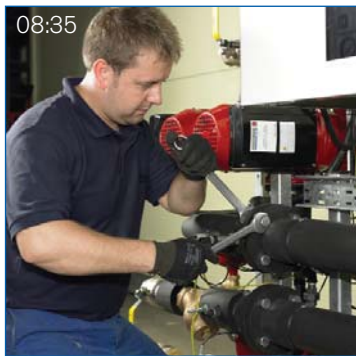
► The Solution

The Armstrong MBS Integrated Heating Solution is a fully integrated commercial heating solution for medium sized applications [120 kW (409 MBH) to 320 kW (1091 MBH)]. It combines the functions of low NO_x gas fired condensing boilers, intelligent variable speed circulating pumps, automatic fill/top up device, expansion vessel, water treatment dosing, PLC controls, piping, electrics and thermal insulation in modules which are easily manoeuvred and connected on site. A 320 kW (1091 MBH), 5 module system can be assembled and ready for use in as little as 2 hours.

The user friendly, integrated controller ensures that an optimal number of boilers are run at the lowest load and maintain the lowest system supply temperature and lowest system flow rate required to maintain pre-set internal temperatures. The aim is to maintain steady state conditions by modulating the load so that thermostatic radiator valves and two-port zone valves ideally remain open for as long as possible. And, with its easy to install modular design, the MBS combines excellent seasonal operating efficiencies with rapid installation. A win/win situation for the designer, installer and owner alike.

Armstrong Integrated Heating Solutions

► Fast and Simple Installation

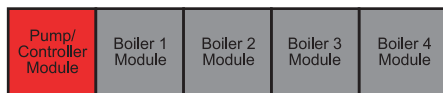


A 3-module system can be assembled (mechanically and electrically) in as little as 45 minutes!

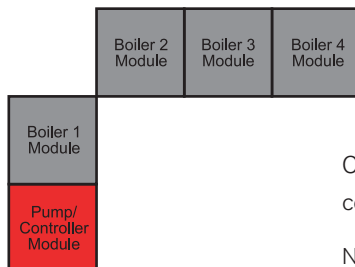
Typical installed costs are 25% less than the traditional on-site approach.

► Multiple Installation Configurations

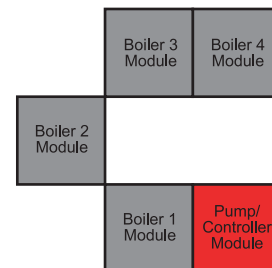
In-line



L-Shape



U-Shape



Optional connection pipe and wiring looms can be supplied for U and L configurations.

NOTE: All piping and electrical connections are made to "PUMP" module only

For more details please refer to data sheets, drawings and technical manuals.

► Applications

The MBS is equally suited to new build or refurbishment projects and its high overall seasonal efficiency exceeds the latest U.K. Part L of the Building Regulations, ASHRAE 90.1 and California Title 24. Schools, office blocks, hotels, sport arenas, apartment blocks, student accommodation, nursing homes, healthcare facilities, prisons, military establishments and government buildings will all benefit from the many in-built features, quick and easy installation and trouble-free commissioning.

MBS Features and Benefits

- ▶ **Integrated sub-systems**Ensures that all sub-systems are matched and able to work in harmony
- ▶ **High overall seasonal efficiencies**Up to 94% overall seasonal efficiencies and low carbon emissions
- ▶ **Modulating load control**Ensures steady load matching and reduces wear and tear on component parts
- ▶ **Modular layout**Easy and quick installation in multiple configurations
- ▶ **Sustainable design**Easy to relocate or recycle
- ▶ **Slim profile**Easily manoeuvred by one person through a single doorway
- ▶ **Variable speed pumping**Reduces electricity consumption and matches duty to load
- ▶ **Pressure controlled fill unit**Automatically fills and maintains the entire system to the pre-set cold fill pressure
- ▶ **Touch-screen panel**Allows easy and secure access to mode and condition displays
- ▶ **Weather compensation**Automatically adjusts system supply temperature in relation to varying outside temperatures
- ▶ **Optimum start**Automatically calculates the best time to start-up the system each morning
- ▶ **BMS compatible**Pre-configured options for Trend, BACnet, Modbus, LonWorks, TCP/IP and GSM modem
- ▶ **Other control features**Frost protection, time control, holiday programming, night set-back, blocked strainer alarm, system pressure, supply and return temperature
- ▶ **Plug and play configuration**Quick fault-free way to complete power and control wiring (only an incoming supply is required)
- ▶ **Pre-insulated pipework**Saves energy and reduces site labour
- ▶ **Integrated gas meter**A new Part L requirement that assists at commissioning and helps monitor energy usage
- ▶ **Inbuilt dosing pot**Enables safe dosing of essential water treatment chemicals

Our policy is one of continuous improvement and we reserve the right to alter our dimensions and specifications without notice

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