ARMSTRONG

BOLT-ON SOLUTIONS DON'T ALWAYS WORK


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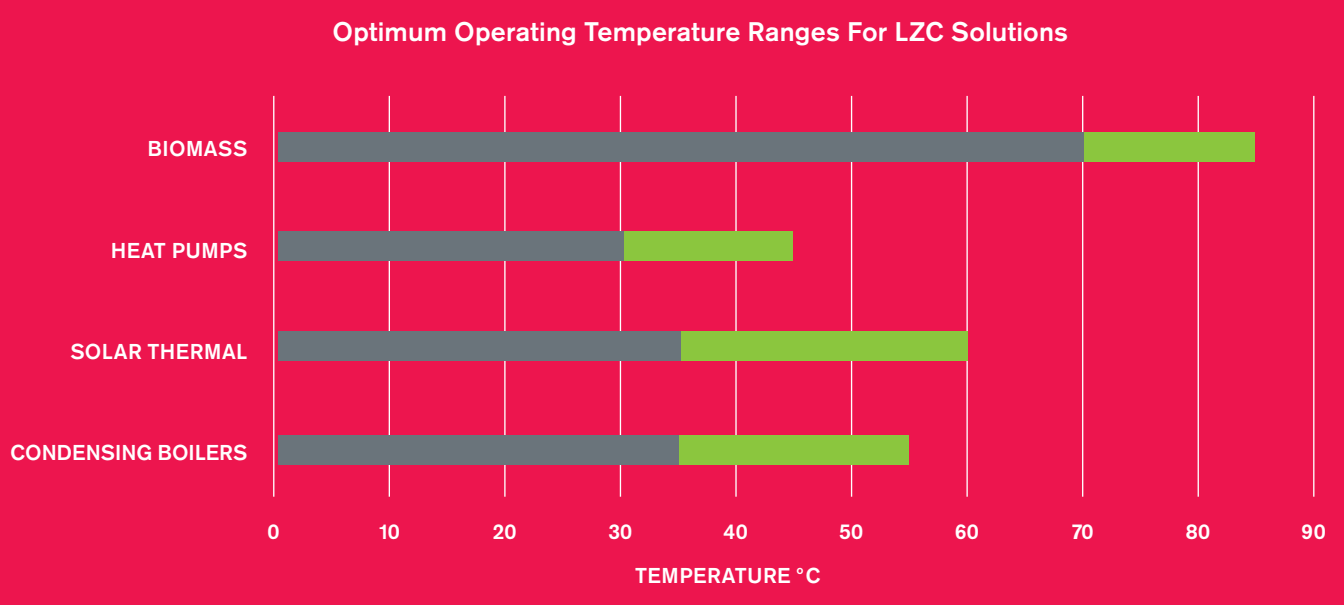
AN INTEGRATED SOLUTION DELIVERS THE PERFORMANCE YOU EXPECT

LOOKING TO INSTALL RENEWABLES AND LOW CARBON TECHNOLOGIES?



IF IT'S NOT INTEGRATED, IT'S NOT GREEN

Many system designs try to marry biomass, heat pumps or solar thermal with more conventional low carbon technologies like gas-fired condensing boilers. However, most of these designs never reach potential operating efficiencies because of poor integration. Of course, they will be more efficient than an old cast iron atmospheric boiler – but they will never reach the high efficiencies outlined in the manufacturer's literature that could have been realised through true integration.

It isn't enough to "bolt on" a zero carbon system to a condensing boiler system and expect improved efficiencies and reduced energy bills. Integration is much more than simple addition. You must consider different optimum temperatures, variable versus fixed speeds and other factors including demand based control.

Zero and low carbon technologies often work at different optimum temperatures; combining them poses a number of challenges. For example, biomass needs to operate at a supply temperature of around 80C (176F). If the return temperature falls below 70C (158F), then you face back-end corrosion and incomplete combustion.

Without true integration, you'll likely face unplanned design, installation and maintenance costs. You'll compromise on occupant comfort, increase life costs – and you probably won't end up meeting your energy efficiency and carbon reduction targets (which is why you wanted the new technology in the first place)!

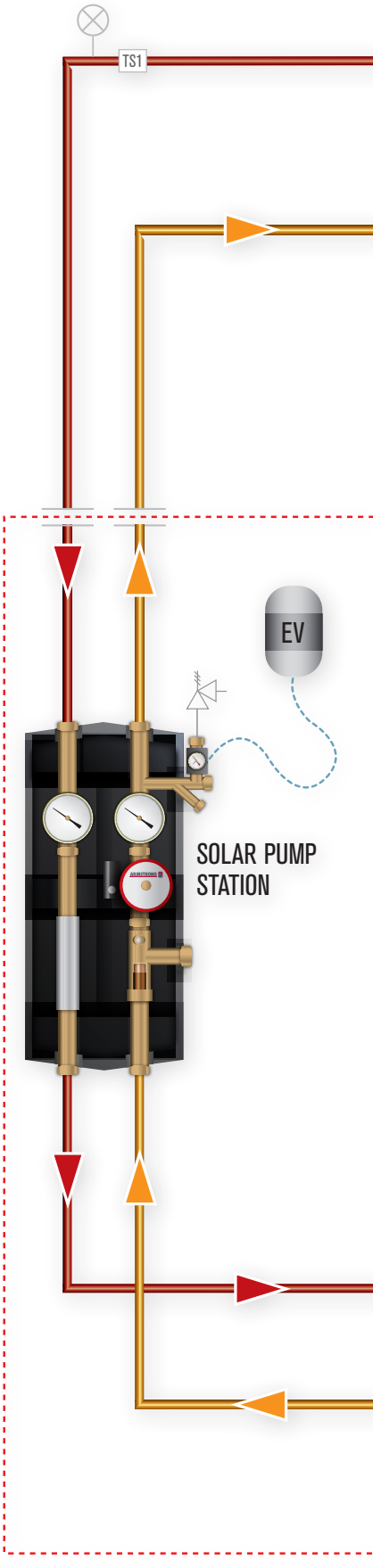
A truly integrated system is the ONLY answer.

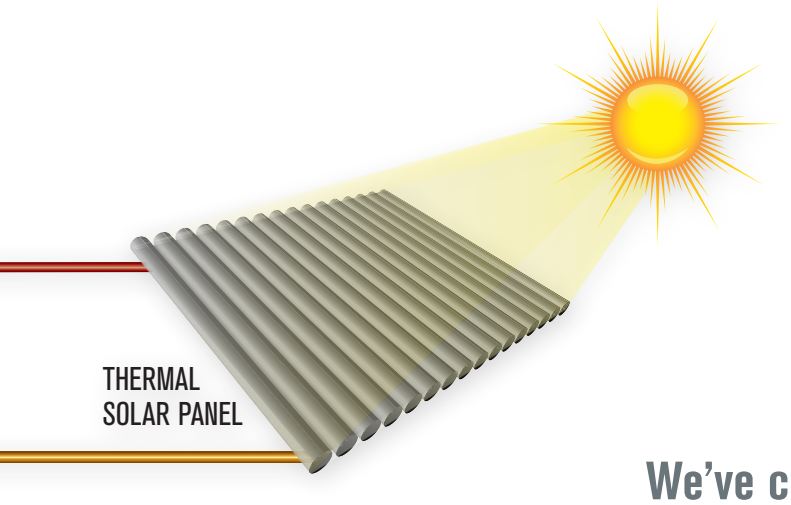
TRUE INTEGRATION WITH ARMSTRONG

COMPLETE SYSTEMS DESIGNED, SELECTED AND BUILT TO MAXIMISE EFFICIENCY

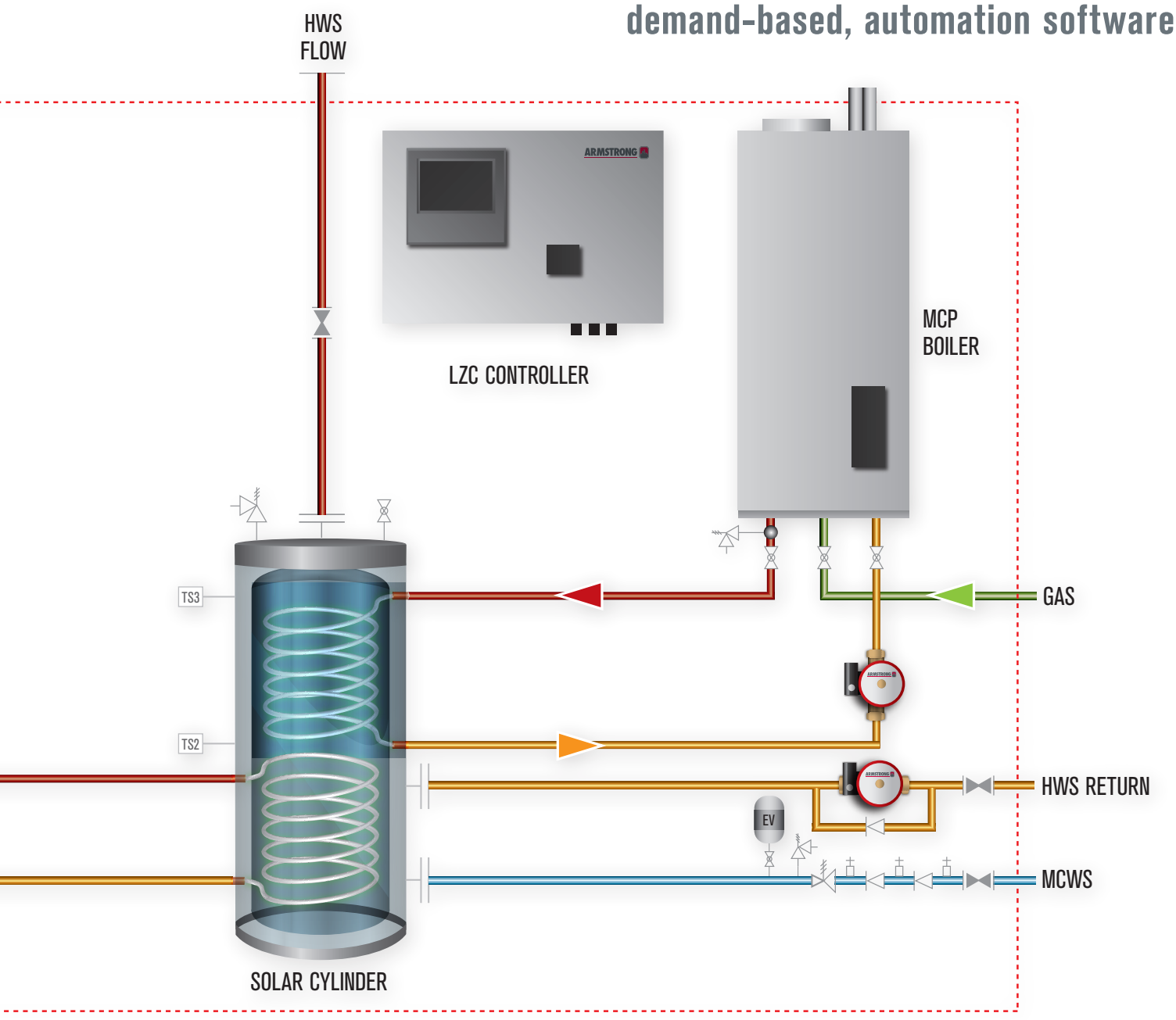
Armstrong's preconfigured LZC solutions successfully combine biomass boilers, heat pumps, solar thermal and condensing boilers into systems that work at optimum temperatures and optimum efficiency for the majority of their working time. We've created these ultra-efficient systems by incorporating two key components; thermal energy stores and application-specific, demand-based, automation software.

HOW IT WORKS: A bio degradable propylene glycol solution is circulated through the solar array by the solar pump station once a predetermined temperature differential is established between TS1 and TS2. The solar array heats the water/glycol mixture which in turn heats the lower portion of the stainless steel solar cylinder. When there is insufficient solar energy available to achieve 60°C at TS3, the LZC controller automatically brings in the back-up boiler for instant top up. The LZC controller uses application-specific automation software to ensure each sub-system and each piece of equipment runs at the required load and temperature for optimum efficiency.





We've created these ultra-efficient systems by incorporating **TWO KEY COMPONENTS;** thermal energy stores and application-specific, demand-based, automation software.



THE BENEFITS OF ARMSTRONG'S 100% INTEGRATED APPROACH

Energy savings

- System integration ensures separate technologies work in harmony
- All variable speed solutions boost efficiency
- Application-specific demand based controls trade off surplus capacity in sub-systems for the lowest possible overall energy consumption at any given time

Best first installed cost

- Modular design reduces installation costs by as much as 24% over traditional site build
- Preconfigured solution reduces design fees and engineering costs
- Offsite manufacture and modularisation reduces site installation time and on-site manpower requirements
- Factory pre-commissioning reduces on-site commissioning time and costs

Space savings

- Layouts provide adequate maintenance space in a minimal footprint
- No duplication of operational features that take up space in conventional bolt-on solutions

Improved maintenance

- Continuous feedback from assembly, installation, commissioning and maintenance teams allows optimisation of design and layout for improved maintenance
- Repeated use of component parts and system configuration enables continuous improvement

Minimised project risk

- Offsite manufacture reduces risk of project overrun – progress continues offsite regardless of weather or other trades' rate of progress
- Reduces onsite health and safety risks
- Addresses LZC skills gap
- Reduces site co-ordination issues
- Brings ahead construction and cash flow schedules
- Reduces design risk and subsequent unplanned cost penalties

MAKING ENERGY MAKE SENSE™

For more on how an Armstrong integrated solution can help you boost efficiency and sustainability, visit www.armstrongintegrated.com or call +44 (0) 8444 145 145.

Armstrong Integrated Ltd.
Wenlock Way
Manchester, M12 5JL
United Kingdom
T +44 (0) 8444 145 145
F +44 (0) 8444 145 146
E salesuk@armlink.com

For Armstrong locations worldwide, please visit www.armstrongintegrated.com