

# Xcel Heat Banks

2009



## The Solution to Multi-Fuel Heating



*The all new 2009 range of Xcel Heat Banks from DPS is the end result from twenty years of continuous development and improvement of thermal store technology.*

*Suitable for simultaneous connection to Wood Burners, Stoves and Biomass Boilers, Gas and Oil Boilers, Solar Panels, Heat Pumps, Vented and Sealed Heating Systems including Radiators and Underfloor Heating, as well as High Performance Showers and Multiple Bathrooms. Very high quality Stainless Steel Laser Welded Construction. Performance guaranteed.*

As recommended by:



### LIFETIME GUARANTEE



# Description of Standard Options

## 1 Size and Capacity

The Xcel 2009 Heat Bank comes in four standard sizes. All are manufactured from Duplex stainless steel, and come complete with chrome finished outer casing and injected CFC free polyurethane insulation.

300 litres: Ø530mm x 2000mm Cased  
 350 litres: Ø580mm x 2000mm Cased  
 475 litres: Ø680mm x 2000mm Cased  
 1000 litres: Ø900mm x 2200mm Cased

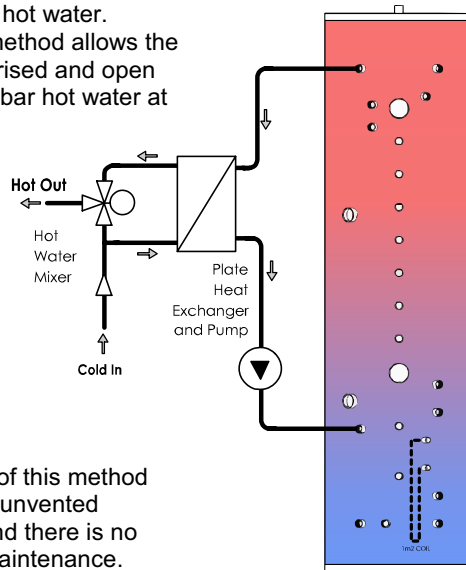
Special sizes and casing finishes on request.

## 2 Domestic Hot Water

The basic concept behind all Heat Banks is the use of a plate heat exchanger to generate mains pressure hot water. Pioneered by DPS, this method allows the store to remain unpressurised and open vented, while providing 9 bar hot water at up to 45 litres per minute.

The assembly comes factory fitted and wired, including plate heat exchanger, flow switch, pump, and thermostatic mixing valve for control of tap supply temperature.

The other big advantage of this method is that it does not require unvented qualifications to install, and there is no requirement for annual maintenance.



## 3 24 hour Electronic Hard Water Protection

Protects the water system and plate heat exchanger from limescale even when there's no water flow. The Hydropath HS38A model is used as standard, and is factory fitted and wired.

*Note: This option is in addition to Domestic Hot Water option.*

## 4 Secondary Return Pump

On installations where a hot water loop is used to prevent dead-legs in supplies to taps, the option of a factory fitted secondary return pump is offered. This includes a bronze pump, non-return valve and pipe thermostat for control of the pump. A Wilo Star Z15 pump is used as standard with other models available on request.

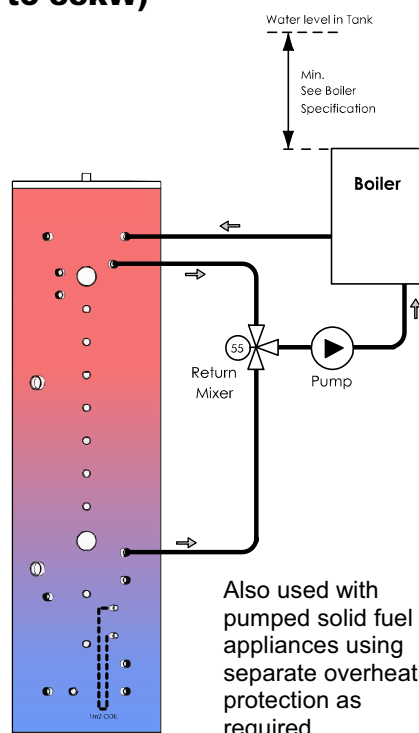
*Note: This option is in addition to Domestic Hot Water option.*

## 5 Direct Open Vented Boiler Assembly (up to 35kW)

When connecting a boiler to the Xcel, the standard option is to use the GX direct connection method. This uses a return mixer assembly to control the return temperature to the boiler and ensure efficient condensing recovery from the top down.

The top of the store is always heated first, at full boiler output, providing hot water within minutes from a cold start. It also allows the user to decide how much of the store should be heated by the boiler (and hence how much of the store is left for alternative heat sources).

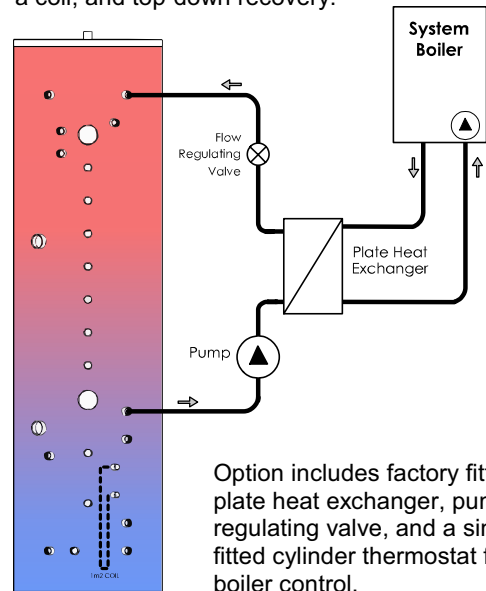
Option includes fitted return mixing valve and cylinder thermostat for boiler control.



Also used with pumped solid fuel appliances using separate overheat protection as required.

## 6 Indirect Sealed Boiler Assembly (up to 28kW)

For the indirect connection of pressurised boiler systems via a plate heat exchanger recovery system. Provides higher heat transfer rates than a coil, and top-down recovery.



Option includes factory fitted plate heat exchanger, pump, regulating valve, and a single fitted cylinder thermostat for boiler control.

# 7

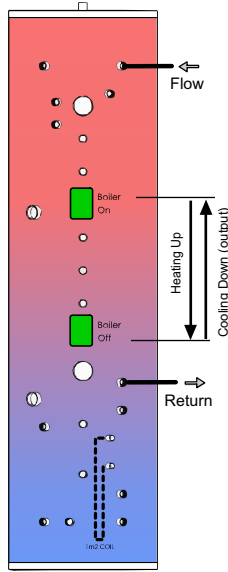
## Additional Thermostat & Relay for Buffered Boiler Operation

Where a boiler is used to heat up the Xcel, the standard options provide for one cylinder thermostat. As a further option the Xcel can be fitted with two cylinder thermostats that are connected together using a relay to provide a buffering function.

The top thermostat is used to turn on the boiler, with the bottom thermostat providing the off signal. This prevents boiler cycling by effectively holding off the boiler until a set volume requires heating. The boiler will then fire in one longer continuous burn until this section of the store has been recovered. As stored water is used up for heating or hot water the boiler remains off until again there is sufficient volume to be reheated.

The option includes factory fitted thermostats as well as the wiring for the relay.

*Note: This option is generally in addition to the Direct or Indirect Boiler Assemblies.*



# 8

## Additional Thermostat for Boiler Economy Mode

Where a boiler is used to heat up the Xcel from the top downwards, this option provides for an Economy Mode, where only the very top section of the Xcel is reheated. This is useful for ensuring hot water for sinks and single showers, while leaving the majority of the store for alternative heat sources. Thermostat and wiring included.

*Note: This option is generally in addition to the Direct or Indirect Boiler Assemblies.*

# 9

## Additional Thermostat for Overheat Function

To provide a basic for of overheat protection an additional thermostat can be fitted for the activation of central heating to remove excess heat from the Xcel. This is always recommended when using a wood burner.

# 10

## Additional Fitted Sensor Pockets

Any spare bosses on the Xcel can be factory fitted with spare sensor pockets for use with site fitted thermostats or sensors. 6mm x 100mm pockets are used as standard with alternatives on request.

# 11

## Standard Pump Assembly 11A Boiler, 11B Heating, 11C Underfloor Htg

For boiler circuits and central heating circuits there is usually a requirement for a fitted circulating pump. The standard pump assembly option can be applied to all circuits fed to and from the store, and includes a Wilo 6m head pump, pump valves, fitting and wiring.

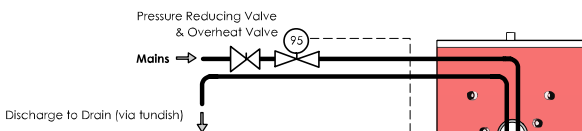
# 12

## High Flow Pump Assmby 12A Boiler, 12B Heating, 12C Underfloor Htg

For boiler circuits and central heating circuits that require a pump larger than a standard circulation pump, this option includes a Wilo TOP-S 30/7 pump capable of delivering up to 100 litres per minute at peak flow, and a peak pressure of 6.8m head. Pump valves, fitting and wiring also included.

# 13

## Power-Free Overheat Protection via Discharge



This option provides overheat protection of over 12kW, which does not rely on pumps or electricity, using a retro-fit coil. When the stored water reached 95°C a factory fitted valve opens to allow cold mains water to run through the coil, providing a cooling affect, then off to drain. A pressure reducing valve is fitted for regulation.

It is very well suited to wood burner installations where a discharge is preferable to dump radiators. It is also suited to solar systems where stagnation of solar panels is not desired.

# 14

## Indirect Sealed Central Heating Assembly (up to 28kW)

For pressurised central heating circuits this option uses a plate heat exchanger to transfer heat from stored water into the heating circuit. Identical to Option 6, except the pump is reversed, pumping down, and no fitted cylinder thermostat.

# 15

## Underfloor Heating Temperature Control Valve, 28mm

To control the temperature of water fed to a central heating circuit, this option provides a fitted 28mm Thermostatic Mixing Valve (Reliance Water Controls). 20 to 65°C range.

# 16

## Immersion Heater, 3 to 9kW 16A 3kW, 16B 6kW, 16C 9kW

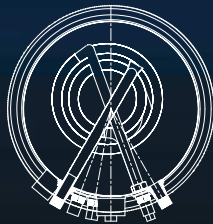
To provide electrically heated hot water, this option includes a fitted 3kW Immersion Heater, complete with control and overheat thermostats. 20 to 83°C setting range.

6kW and 9kW options require separate overheat protection!



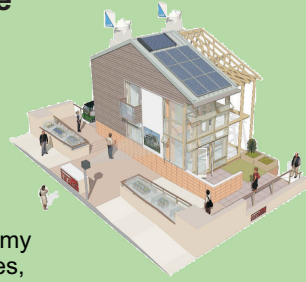
### Technical Specification:

Capacity:	300, 350, 475, 1000 litres
Material:	Duplex Stainless Steel
Bosses:	20 x 3/4" Female 2 x 3/4" Diffuser Tubes 2 x 2 1/4" Female 2 x 1 1/2" Female
Solar Coil:	1m <sup>2</sup> Finned Stainless Steel
Boss Span:	70°
Insulation:	40mm CFC Free Foam
Casing:	Rotary Wound Steel
Test Pressure:	9 bar
Domestic Hot Water:	150kW Peak (45 lpm) 9 bar pressure (via PHE) Drinkable



### The Zero Carbon House

At both Ecobuild 2008 and 2009 DPS and the Heat Bank were invited to participate as part of the exhibition's main attraction the Zero Carbon House. Designed by ZedFactory, the house is a full-size installation, stripped back to reveal the anatomy of the building, the design features, products and solutions which combine to make zero carbon housing a reality now. Visitors were able to tour the entire structure and learn about the materials used, its systems and energy performance as well as the pre-fabricated timber frame panels that made it possible to complete the entire structure in just three days ready for the exhibition!



*"It is all very well having all this zero carbon heat if it then has nowhere to go. For many years this has held back the harvest possible from solar thermal and biomass and hence payback. Forming a partnership with DPS we found a like-minded manufacturer able to design heat stores to make the most of the renewable technologies we have sourced."*

ZedFabric Innovations

**Recommended by all well known wood burner manufacturers**

The key to the Xcel 2009 Heat Bank is its versatility. For twenty years DPS have been manufacturing both standard and bespoke hot water systems, combining just about every type of heat source there is available to drive central heating and hot water for domestic properties. The Xcel 2009 standardises the whole approach, providing design features that allow any possible combination to be made using a standardised product.

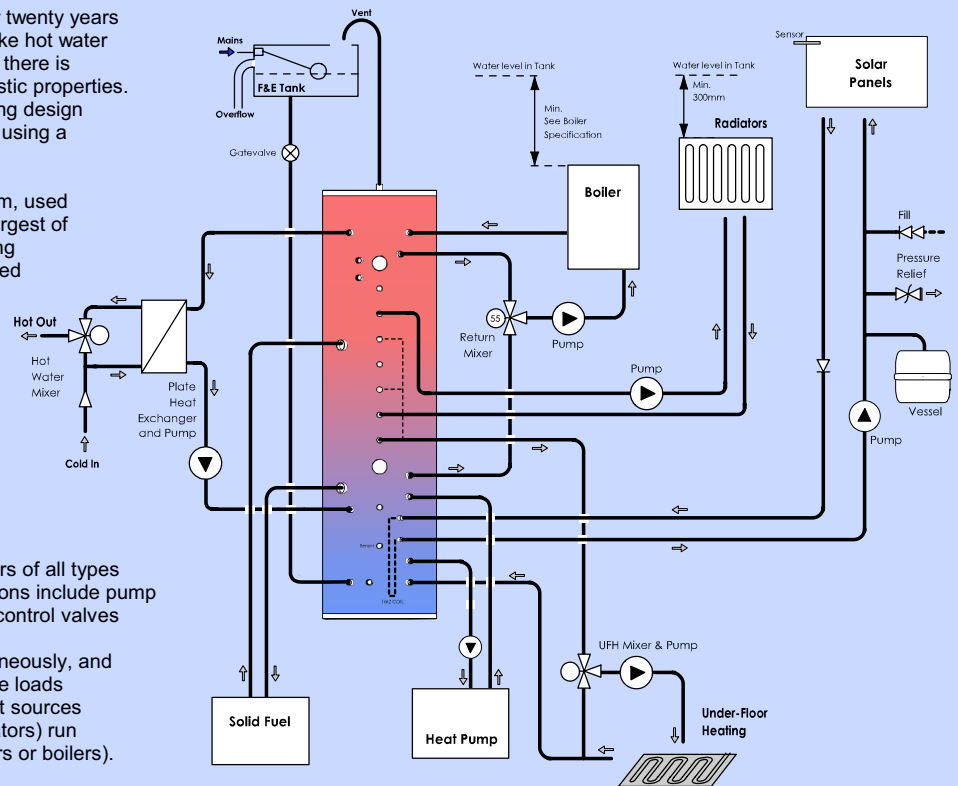
In its most basic form the store can act as a buffer system, used purely for central heating. Large 1 1/2" bosses allow the largest of domestic wood burners to be comfortably connected using gravity circulation, with numerous other bosses for pumped circuits. Even larger 2 1/4" bosses provide for immersion heaters as well as retro-fit coils (mainly used for overheat protection). A large 1m<sup>2</sup> coil is provided as standard for connection of solar panels (or any other pressurised heat source)

One can then add the PHE (plate heat exchanger) option to generate mains pressure hot water to run multiple bathrooms using high pressure mains water, without the need for unvented certification or annual maintenance.

Further options provide fitted controls for the use of boilers of all types (sealed and vented) as well as heat pumps. Control options include pump assemblies, thermostats, programmers and timers, and control valves

Both radiators and underfloor heating can be run simultaneously, and the store is configured in such a way that low temperature loads (e.g. underfloor heating) can run off low temperature heat sources (e.g. heat pump) while high temperature loads (e.g. radiators) run using higher temperature heat sources (e.g. wood burners or boilers).

Everything working in perfect harmony.



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## The Xcel 2009 Heat Bank

Shown here as it leaves the factory, with the selected options pre-fabricated, wired, tested and backed up by a year on-site cover.

This photo shows a system perfect for connection to a wood burner installation, and includes the following options:

- 1A. 300 litre store
- 2. Mains pressure hot water
- 9. Overheat thermostat
- 11B. Radiator pump
- 13. Power free overheat protection
- 16A. 3kW Immersion heater