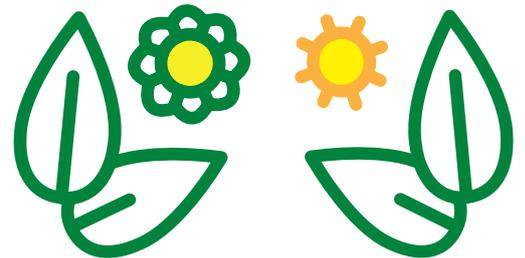


Theta

Dual service
BFC, SGE, SGS
for 20/30/40 kW heating capacity



- Module to combine central heating with a high efficiency water heater
- Plate heat exchanger with DHW pump, three-way mixing valve, control and temperature sensor
- Including intelligent control
- Used in combination with condensing, high efficiency BFC Cyclone and solar water heaters SGE and SGS
- For applications with a relatively small heating demand compared to the hot water demand

How dual service works

Theta dual service means using the available hot water from one of our water heaters for both domestic hot water (DHW) and heating. Dual service can be used in combination with a BFC Cyclone, SGE or SGS system. This is a perfect system for locations where a lot of domestic hot water and a little bit of heating is requested.

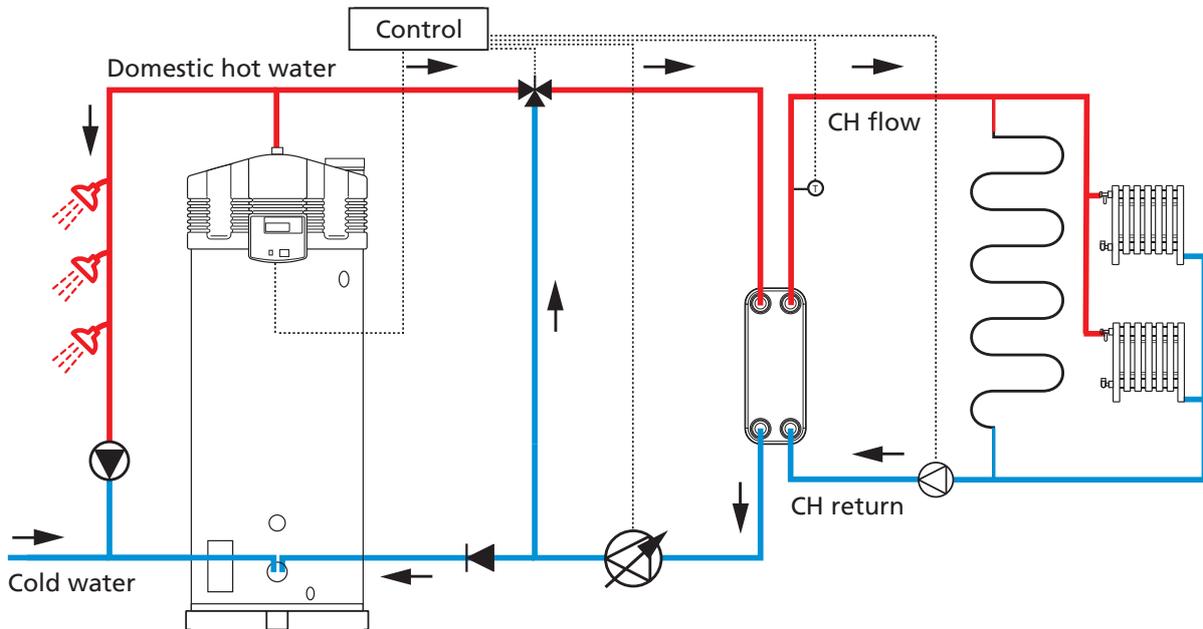
The Theta dual service system for heating consists of a plate heat exchanger with a primary DHW pump, a three-way mixing valve, a temperature sensor with clip, the control and the required connection materials. The intelligent control uses the available hot water very efficiently to meet the heating demand from one system without compromising comfort levels.

The central heating set point can be programmed at 70°C, for example, for a normal radiator circuit for 70/50°C. Or it can be programmed at 40°C for an under floor heating circuit for 40/30°C.

The master will control the DHW pump and three way mixing valve to reach the programmed set point. By reducing the speed of the DHW pump with a maximum of 50% and using the three way mixing valve to mix the return water with the water from the water heater, a stable heating supply temperature will be reached.

By modulating the DHW pump and controlling the three way mixing valve, the heating capacity can be reduced to a minimum, completely adapted to the actual heating demand. Moreover the mixing with the colder return water contributes to the total efficiency of the water heater.

Thanks to the intelligent Dual service control the DHW set point can be set independently from the heating set point.



Application examples

Camp site

Theta dual service can be used on camp sites for warming the sanitary water heating the shower and toilet building. In this case, there is a large demand for hot water and a smaller demand for heating. The combination with a condensing gas-fired water heater BFC Cyclone makes the installation compact and simple, in which low temperature heating, such as under floor heating, is the most ideal solution. Combined with a solar water heater SGE or SGS, this installation becomes even more environmentally friendly because solar energy can be used for both hot water and heating.



Sports facilities

At the majority of sporting installations there is a large demand for domestic hot water for the showers and wash basins, and a relatively small demand for heating. In these applications the buffered energy in the BFC Cyclone, SGE or SGS can be used to heat the shower and toilet building. Combined with a SGE or SGS the installation becomes even more environmentally friendly.



Benefits

Benefits for the installer

The application of dual service on a BFC Cyclone, SGE or SGS means both the domestic hot water and the heating demand can be fulfilled with one installation. The installation only needs one flue outlet, one water connection and one gas connection. Moreover, the entire installation is controlled by one intelligent controller. Service and maintenance are very easy for the installer; just one installation for both hot water and heating.

A.O. Smith is an advocate of total system solutions. The renewable elements are delivered as an integrated system for optimum system efficiency. By delivery and commissioning by A.O. Smith, the optimum functionality and efficiency of the system are guaranteed. Simplicity, ease of use and a one-stop shop for your entire installation; these are the strengths of A.O. Smith.

Benefits for the user

By using Theta dual service combined with a condensing BFC Cyclone or solar water heaters SGE or SGS, it is very easy to use the available hot water for heating adjacent spaces. This makes this system very compact whilst maintaining comfort levels. And this solution saves the capital investment of buying a separate boiler.

The installer can buy the entire installation from one supplier and it is controlled by one intelligent controller. The installation can perfectly be configured according to the individuals' demands and needs.

The Remote Display (option for SGE and SGS) shows actual solar contribution and temperatures in your solar system. With use of the BMS interface you can extract several data from the appliance: SGE, SGS or BFC. This data can be converted to your Building Management Software.



REMOTE DISPLAY

- Shows several key temperatures, solar contribution in Joules, pump status
- Always install in combination with a QT sensor
- Applicable on SGE and SGS

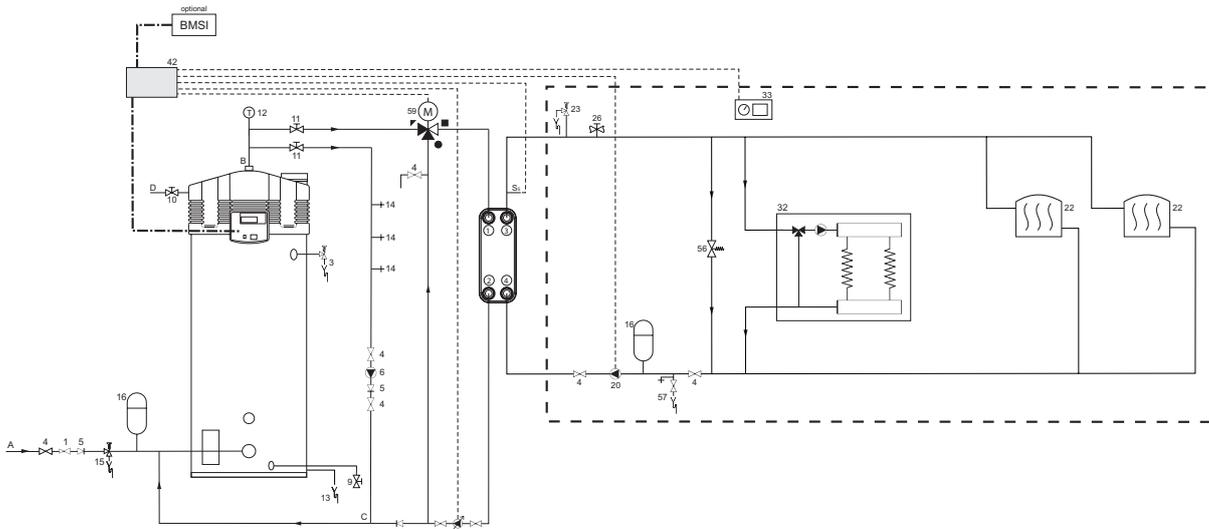


BMS INTERFACE

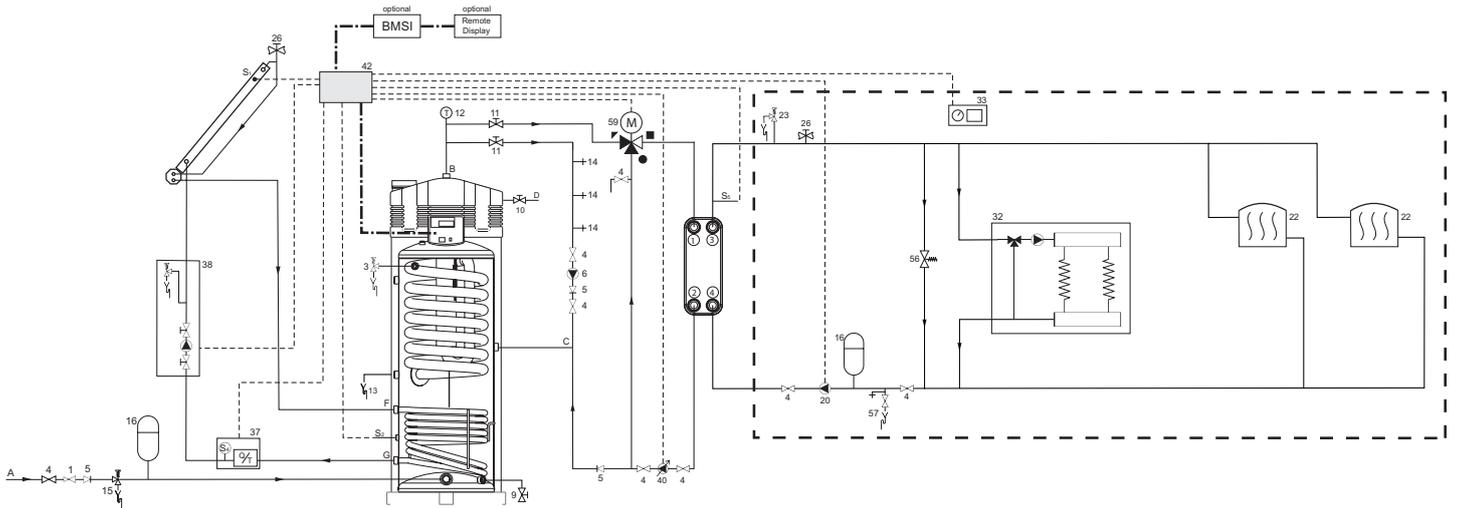
- Programmed for ModBus protocol
- Can monitor up to 50 parameters

Installation drawings

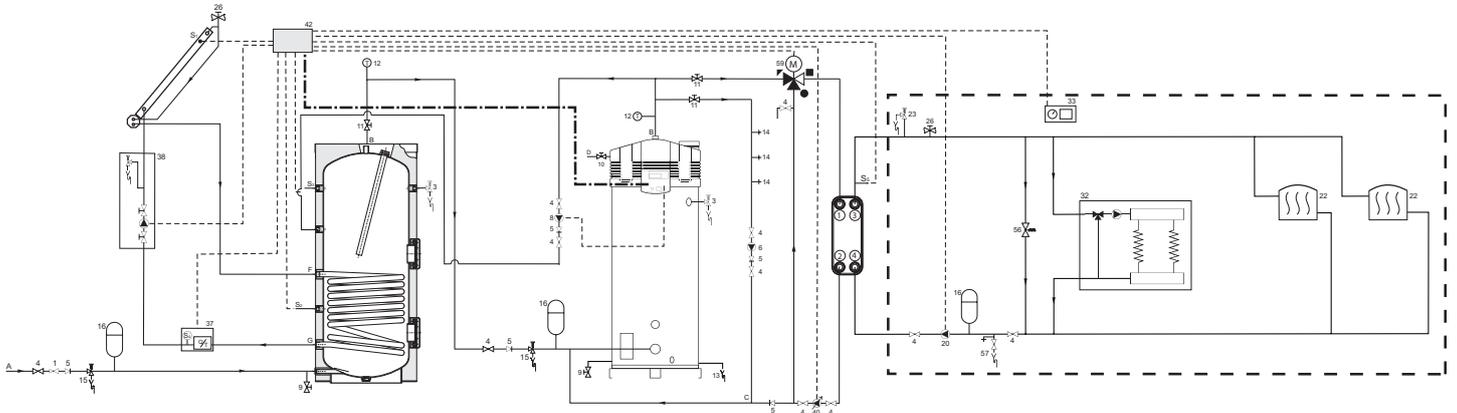
Theta dual service with three-way mixing valve and DHW pump in combination with a BFC Cyclone



Theta dual service with three-way mixing valve and DHW pump in combination with a SGE solar water heater



Theta dual service with three-way mixing valve and DHW pump in combination with a SGS solar water heater



Also applicable as vented installation

Features

THETA DUAL SERVICE

- Module to combine central heating with a high efficiency water heater
- Used in combination with a condensing gas-fired water heater BFC Cyclone or solar water heaters SGE or SGS
- Tailored modules for BFC, SGE and SGS
- For applications with a relatively small heating demand compared to the hot water demand
- Delivered as complete package: plate heat exchanger, DHW pump, three-way mixing valve, control, temperature sensor incl. clip and connection materials
- The maximum distance between the appliance and the plate heat exchanger can be 5 meters (in a system with a pipe diameter of Ø 22mm)
- Initial investment, service- and maintenance costs are considerably lower than a stand-alone boiler
- Options:
 - Remote Display for SGE and SGS which shows temperatures and solar contribution
 - BMS Interface for monitoring up to 50 parameters through a Building Management System
 - Insulation materials for the plate heat exchanger

Please use the table below for selecting the CH pump.

Theta dual service module	ΔT CH system	Specifications plate heat exchanger heating side	
		Flow (m ³ /h)	ΔP (kPa)
T(M) 20 06	36-30	2,9	8
T(M) 20 10	40-30	1,7	9
T(M) 20 20	70-50	0,9	2,5
T(M) 30 06	36-30	4,3	10
T(M) 30 10	40-30	2,6	6,5
T(M) 30 20	70-50	1,3	5
T(M) 40 06	36-30	5,8	17
T(M) 40 10	40-30	3,5	11
T(M) 40 20	70-50	1,8	9

Insulation

Description	T(M) 20 06 Art. No.	T(M) 20 10 Art. No.	T(M) 20 20 Art. No.	T(M) 30 06 Art. No.	T(M) 30 10 Art. No.	T(M) 30 20 Art. No.	T(M) 40 06 Art. No.	T(M) 40 10 Art. No.	T(M) 40 20 Art. No.
Insulation for the plate heat exchanger	0311106(S)	-	-	-	0311106(S)	-	-	0311106(S)	-
	-	0311011(S)	0311011(S)	-	-	0311011(S)	-	-	0311011(S)
	-	-	-	0311107(S)	-	-	0311107(S)	-	-

Modules for BFC Cyclone



THETA MODULE FOR BFC

- Plate heat exchanger – single separation (a double separated plate heat exchanger can be delivered upon request)
- Control with communication cable
- Primary DHW pump
- Temperature sensor with cable incl. clip
- Three-way mixing valve including cables
- Instruction manual

BFC MODULES

Art. No.	Control	kW CH capacity	ΔT CH system
TM 20 06	M	20	06
TM 20 10	M	20	10
TM 20 20	M	20	20
TM 30 06	M	30	06
TM 30 10	M	30	10
TM 30 20	M	30	20
TM 40 06	M	40	06
TM 40 10	M	40	10
TM 40 20	M	40	20

For installations that require more than 40 kW heating capacity, please contact A.O. Smith.

Modules for SGE & SGS



THETA MODULE FOR SGE & SGS

- Plate heat exchanger – single separation (a double separated plate heat exchanger can be delivered upon request)
- Primary DHW pump
- Temperature sensor with cable incl. clip
- Three-way mixing valve including cables
- Instruction manual

SGE/SGS MODULES

Art. No.	kW CH capacity	ΔT CH system
T 20 06	20	06
T 20 10	20	10
T 20 20	20	20
T 30 06	30	06
T 30 10	30	10
T 30 20	30	20
T 40 06	40	06
T 40 10	40	10
T 40 20	40	20

For installations that require more than 40 kW heating capacity, please contact A.O. Smith.

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OFFERING & ADVICE

A.O. Smith Water Heaters can provide you with a tailor made offer for you application.
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