

# oventrop

Innovation + Quality

Valves, controls + systems

“Regucor” Energy storage centres  
for “Power to heat”, solar thermal energy,  
potable water and heating

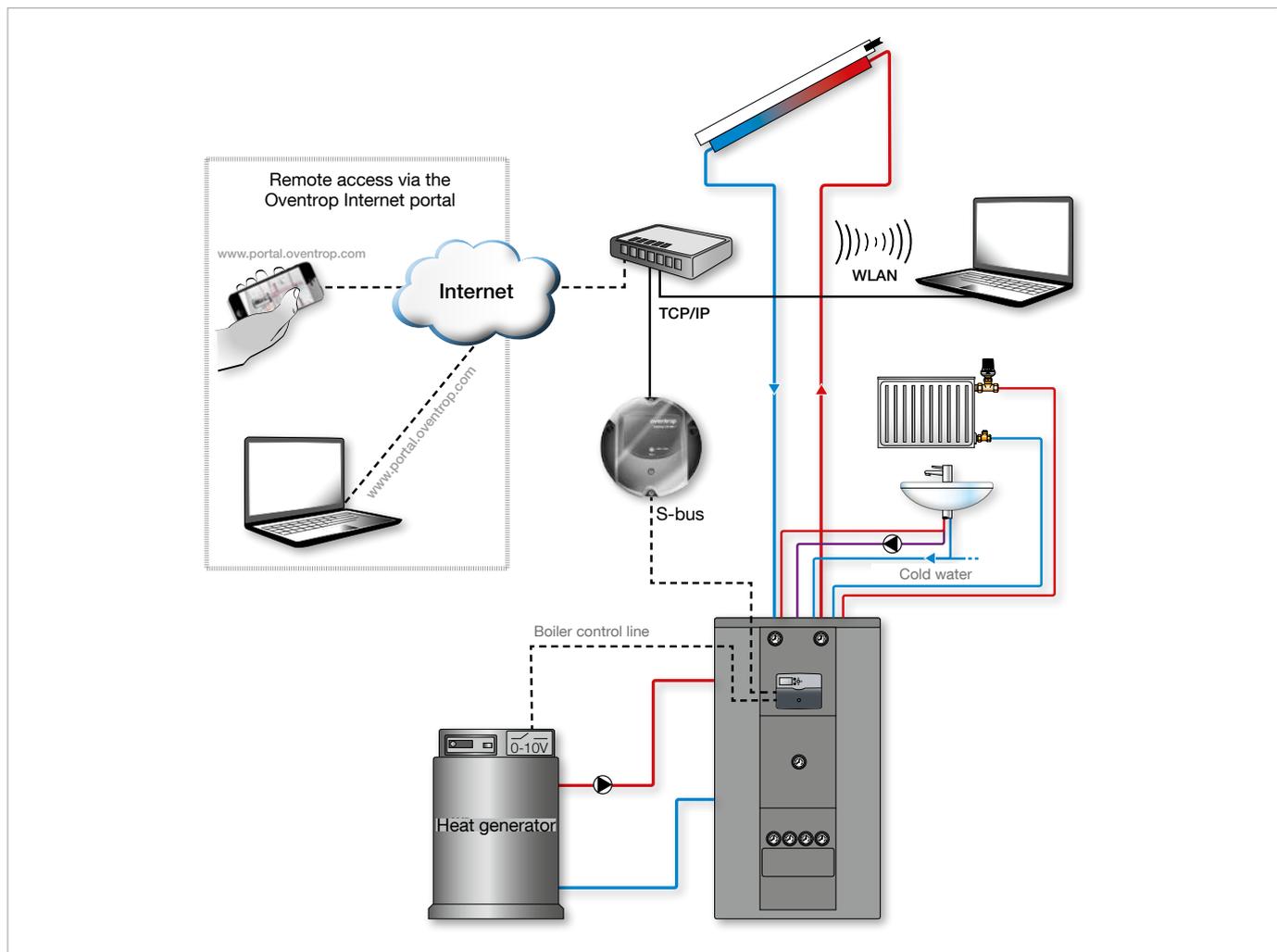
Product range

*for improved  
energy efficiency...*



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System illustration - Energy storage centre "Regucor WHS" for solar thermal energy, potable water and heating



“Regucor WHS” Energy storage centre with add-on groups

Heating systems with regenerative energy sources consist of various components. They are often installed separately and have to be co-ordinated. This problem is solved by the Oventrop energy storage centre “Regucor” in new and existing buildings. The modular energy storage centres are used for the supply of detached and semi-detached houses with heat and hot potable water.

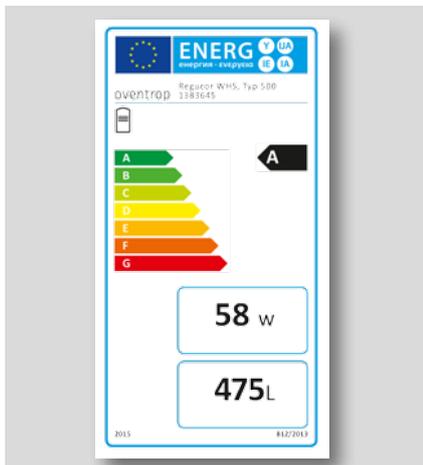
Oventrop offers three models:

- “Regucor WHP” “Power to heat”
- “Regucor WHS”
- “Regucor WH”

The Oventrop energy storage centres “Regucor” consist of:

- Add-on group “Power to heat” (“Regucor WHP” **only**)
- Add-on group “Solar” (“Regucor WHS” **only**)
- Add-on group “Hot potable water preparation”
- Add-on group “Heating circuit”
- System storage cylinder
- Heat generator connection (boiler, heat pump, system controller)

The “Regucor” which allow for a time- and space-saving installation can be connected to different heat generators.



Label  
Energy efficiency class “A” rating for “Regucor WHS” type 500

### Advantages:

- 150 mm high efficiency insulation for heat loss reduction
- High energy efficiency during heat storage and heat supply
- Time- and cost-saving assembly and pipe installation due to internal pipework, pre-assembled product group and only one connection level to domestic installation
- Especially suitable for existing and new detached and semi-detached houses
- System temperature visible at a glance
- Hydraulically co-ordinated components for heat storage and heat supply
- Realization of regenerative pipework configurations (photovoltaic current, solar, solid fuel etc.)
- All three return pipes (heating circuit 1 + 2 and potable water) are connected to the layering devices of the buffer storage cylinder which guarantees a stable temperature layering (important during potable water circulation operation !)
- Low heat loss as the product group is connected to the lower storage cylinder section (lowest temperature level)



“Regucor WHP” Energy storage centre “Power to heat” with add-on groups

The energy storage centre “Regucor WHP” “Power to heat” serves the solar-assisted supply of heat generated by the surplus energy of a photovoltaic installation or other regenerative electricity sources to detached and semi-detached houses. If more photovoltaic electricity is available than required for the supply of the household appliances, this electricity is used for heating the energy storage centre “Regucor WHP”.

The “Regucor WHP” consists of the following components:

**Add-on group “Power to heat”:**

- Active power detection
- Power electronics
- Electrical immersion heater

**Add-on group “Hot potable water preparation”:**

“Regumaq XH” DN 20:

- Hydraulically controlled product group with heat exchanger for the hygienic heating of potable water according to the continuous flow principle
- Recommended discharge capacity: 15-20 l/min., depending on the set potable water temperature and the existing water temperature in the buffer storage cylinder
- Connections: G ¾ flat sealing male thread
- High-efficiency pump Wilo-Yonos PARA RS 15-7 PWM2
- Temperature controller 40-60 °C
- Heat exchanger made of stainless steel, copper brazed

**Add-on group “Heating circuit”:**

“Regumat M3-130” DN 20:

- Connections: G 1 flat sealing male thread
- High-efficiency pump Wilo-Stratos PICO 15/1-6
- Three-way mixing valve and actuator

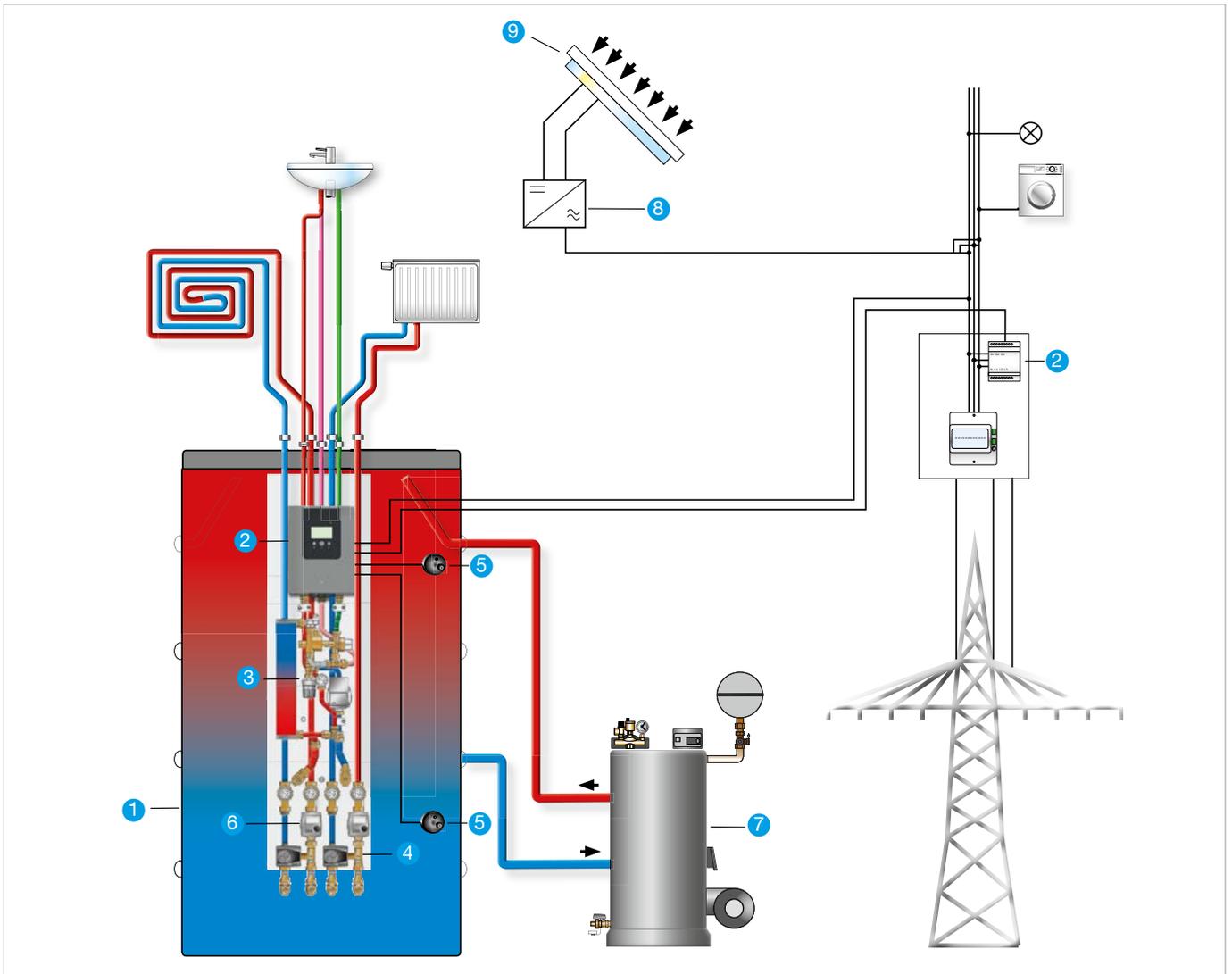
**System storage cylinder:**

- Buffer storage cylinder
- Removable thermal insulation
- Integrated temperature layer unit

Type	Description	Energy efficiency class rating	Item no.
500	Nominal content 475 litres Heat exchanger made of stainless steel, copper brazed (without add-on group “Solar”)	“C”	1371000

**Advantages:**

- Maximum use of the self-generated photovoltaic current
- High efficiency
- Energy efficient due to storage cylinder with loading operating section by section
- Combination with other heat generators
- Simple hydronic integration
- Priority function for hot potable water preparation
- Frost protection function
- Environmentally compatible



System illustration "Regucor WHP" combined with a conventional heat generator

### Legend:

- 1 System storage cylinder
- 2 Add-on group "Power-to-Heat" (power electronics with active power detection)
- 3 Add-on group "Hot potable water preparation"
- 4 Add-on group "Heating circuit 1"
- 5 Electrical immersion heater
- 6 Add-on group "Heating circuit 2" (optional)
- 7 Heat generator (e.g. oil/gas/heat pump/solid fuel)
- 8 Inverter
- 9 Photovoltaic - solar module



Extension set "Electrical immersion heater"



The energy storage centre “Regucor WHS” serves the solar-assisted supply of detached and semi-detached houses with heat and hot potable water.

The storage cylinder and the add-on groups are functionally and thermodynamically co-ordinated.

“Regucor WHS” Energy storage centre with add-on groups

Type	Description	Energy efficiency class rating	Item no.
500	Nominal content 475 litres Heat exchanger made of stainless steel, copper brazed Insulation: Compound insulation 160 mm (Insulation, item no. 1383646, to be ordered separately)	Energy efficiency class “A” rating 	1383645
800	Nominal content 706 litres Heat exchanger made of stainless steel, copper brazed Heat exchanger made of stainless steel, nickel brazed Insulation: Fleece insulation 150 mm	Thermal insulation of energy efficiency class “C” rating	1383550 1383562
1000	Nominal content 900 litres Heat exchanger made of stainless steel, copper brazed Heat exchanger made of stainless steel, nickel brazed Insulation: Fleece insulation 150 mm	Thermal insulation of energy efficiency class “C” rating	1383555 1383567

Models



Add-on group “Solar”



Add-on group “Hot potable water preparation”



Add-on group “Heating circuit”



Electronic controller “Regtronic RS”

The Oventrop “Regucor WHS” consists of the following components respectively can be extended by the following accessories:

**Add-on group “Solar”:**

- “Regusol LH-130” DN 20:
- Connections: G 3/4 male thread according to DIN EN 16313 (cone “Euro”)
- High-efficiency pump Wilo-Yonos PARA ST 15/7 PWM
- Flow measuring device: 2-14 l/min.
- Safety group for riser installation 6 bar

**Add-on group “Hot potable water preparation”:**

- “Regumaq XH” DN 20
- Hydraulically controlled product group with heat exchanger for the hygienic heating of potable water according to the continuous flow principle
- Recommended discharge capacity: 15-20 l/min., depending on the set potable water temperature and the existing water temperature in the buffer storage cylinder
- Connections: G 3/4 flat sealing male thread
- High-efficiency pump Wilo-Yonos PARA RS 15/7 PWM 2
- Temperature controller 40-60 °C
- Heat exchanger made of stainless steel, copper or nickel brazed

Extension set for potable water circulation available as accessory.

**Add-on group “Heating circuit”:**

- “Regumat M3-130” DN 20 for weather guided flow temperature control:
- Connections: G 1 flat sealing male thread
- High-efficiency pump Wilo-Stratos PICO 15/1-6

- Three-way mixing valve with actuator  
The extension by an additional variable temperature heating circuit is possible with the help of the extension set, **item no. 1383775.**

**Electronic controller “Regtronic RS”:**

- “Regtronic RS” for the control of the energy storage centre “Regucor WHS” and further installation components, such as solid fuel boiler, reheating demand, circulation, thermal disinfection, etc.:
- up to 13 free inputs (for instance for temperature measurement)
- up to 9 free solid-state relay outputs (for instance for the connection of an existing heat generator)
- “S-bus” for the connection to the data logger “CS-BS” (visualization and monitoring of energy efficiency)
- SD card slot (for instance for data recording)

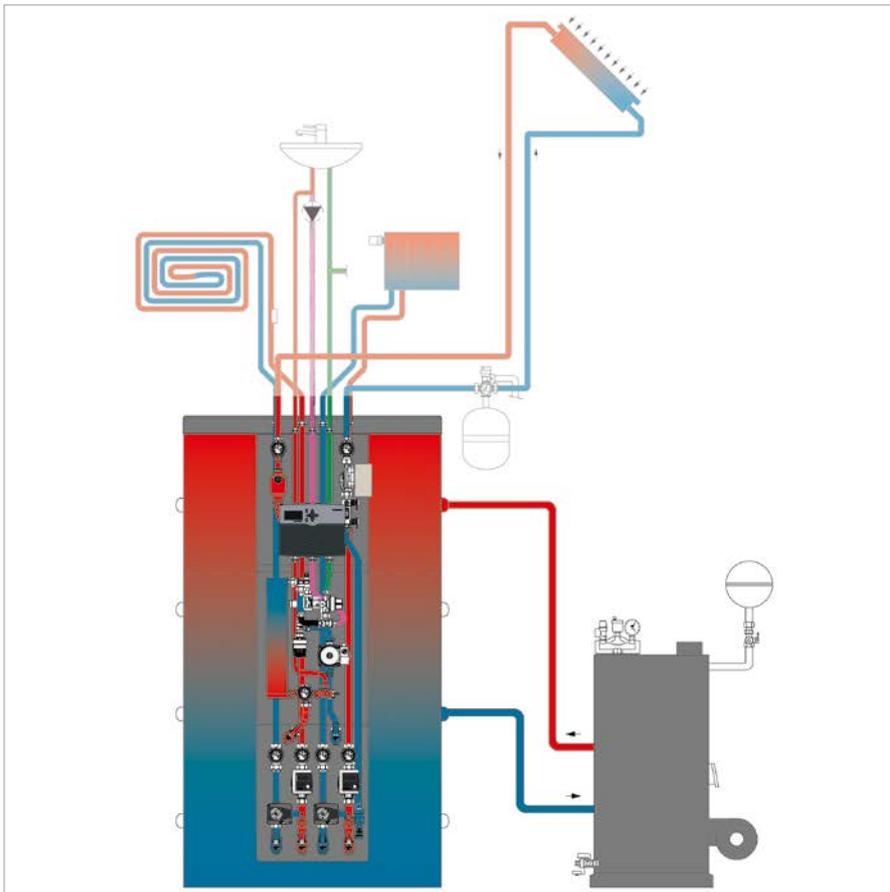
Preloaded function blocks simplify the system parametrization and thus facilitate an integration of several heat generators (e.g. oil, gas or solid fuel boilers).

Up to 5 extension modules “Regtronic EM” can be connected to the “Regtronic RS”. Thus, there is a total number of 39 relay outputs for individual pipework configurations.

**ErP classification “Regtronic RS” for “Regucor WHS”**

Controller	Required accessories	Boiler control		ErP %	Class
		modulating (0-10V V)	On/Off		
“Regucor” controller	-	x		4.0	VI
“Regtronic RS”	-		x	3.5	VII
including remote control with room temperature sensor	2 x room temperature sensor item no. 1152095	x		5.0	VIII

ErP classification “Regtronic RS” for “Regucor WHS”



1

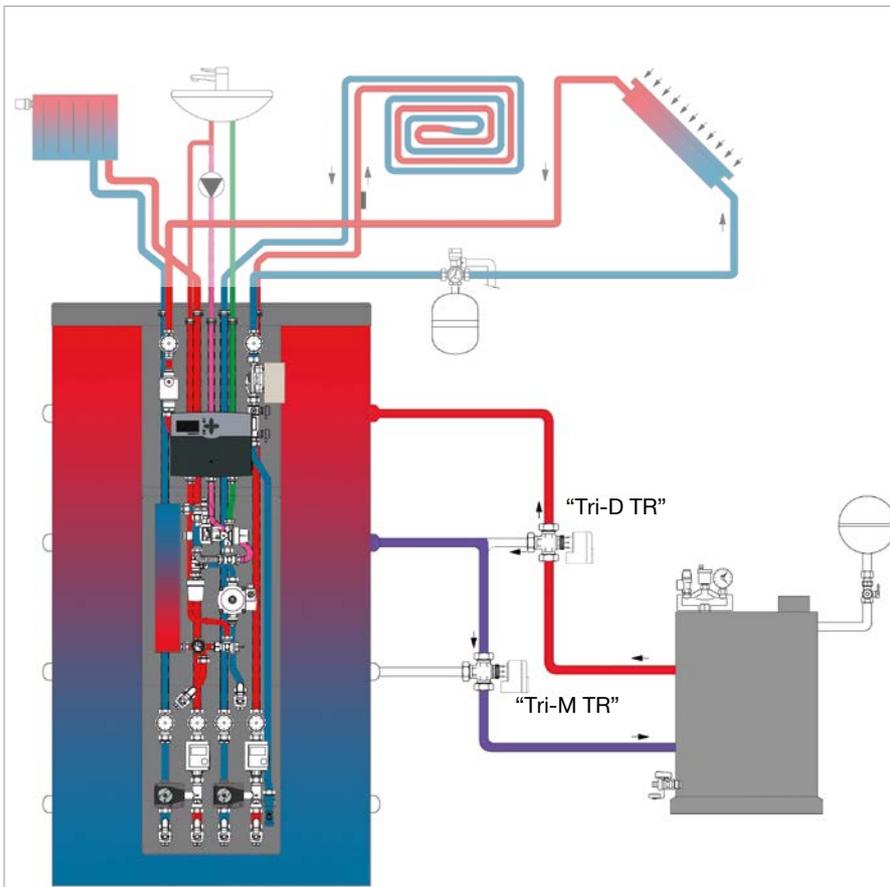
Solar utilization is not the only design intent of the “Regucor WHS”. It can also be combined with different heat generators and features all necessary connections.

**1** “Regucor WHS” combined with conventional heat generators, such as **oil or gas boilers**.

Oil and gas boilers are connected via the upper storage cylinder connection. The boiler return has to be positioned in the lower third to make sure that there is enough space for solar heat return. Re-loading of the storage cylinder can be controlled via the system controller “Regtronic RS”. A maximum of two heating circuits can be connected.

The volume in stand-by motion can be defined via a temperature sensor at the storage cylinder.

Re-loading of the storage cylinder can be suppressed while it is loaded by solar energy. This way, the solar heat return increases and fossil fuels are saved.



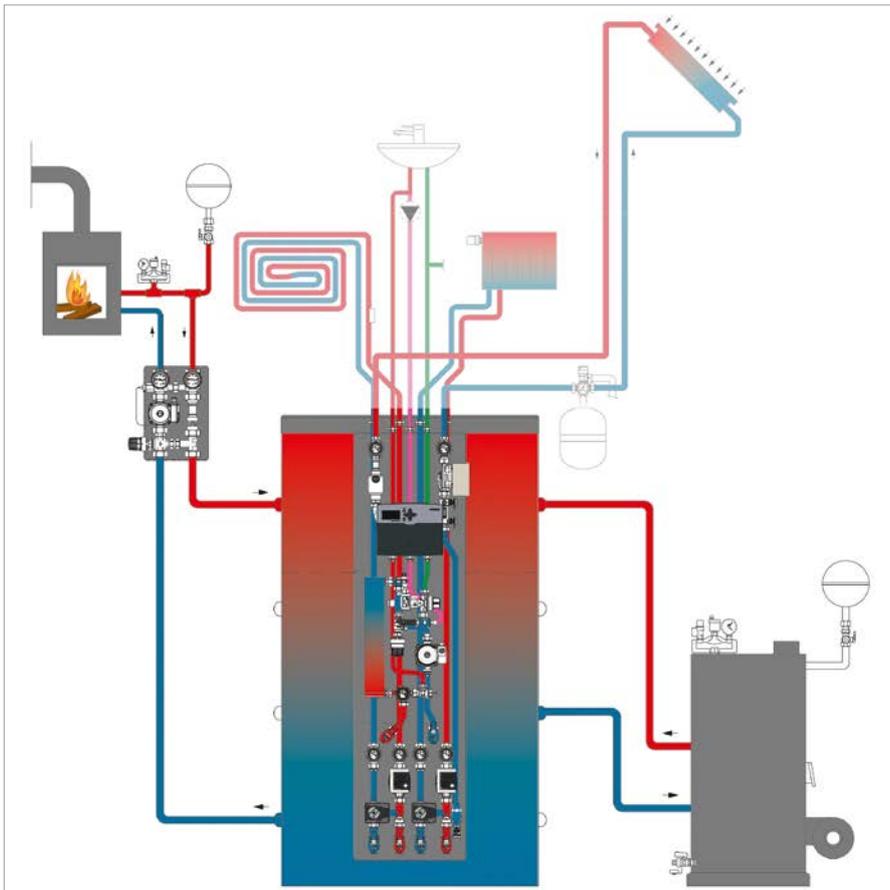
2

**2** “Regucor WHS” combined with **heat pumps** (also suitable for the connection of **oil or gas boilers**).

The storage cylinder can be loaded in two temperature zones via diverting and mixing valves (priority, secondary). Switching between the temperature zones is carried out by the system controller “Regtronic RS”.

Re-loading of the storage cylinder can also be controlled via the system controller “Regtronic RS”. A maximum of two heating circuits can be connected.

Re-loading of the storage cylinder can be suppressed while it is loaded by solar energy.



3

**3** “Regucor WHS” combined with conventional heat generators, such as **oil or gas boilers** with additional water heating **stove**.

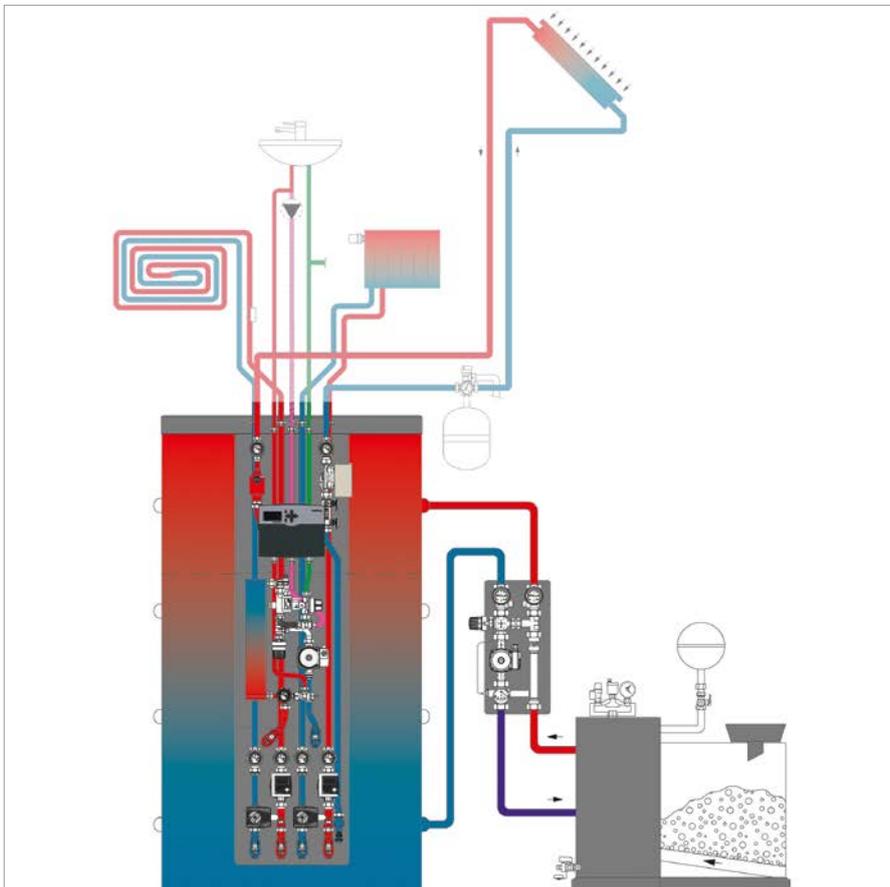
In installations with oil or gas boilers with additional water heating stove, the order of the corresponding return pipes must be observed.

Re-loading of the storage cylinder can be controlled via the system controller “Regtronic RS”. Control of both, the main heat generator and the water heating stove is possible.

The volume in stand-by motion can be defined via a temperature sensor at the storage cylinder.

When using the “Regumat RTA” stations for return temperature increase, the minimum return temperature amounts to approx. 55 °C and thus lies above the dew point. The formation of pitch is avoided.

Re-loading of the storage cylinder can be suppressed while it is loaded by solar energy. This way, the solar heat return increases and fossil fuels are saved.



4

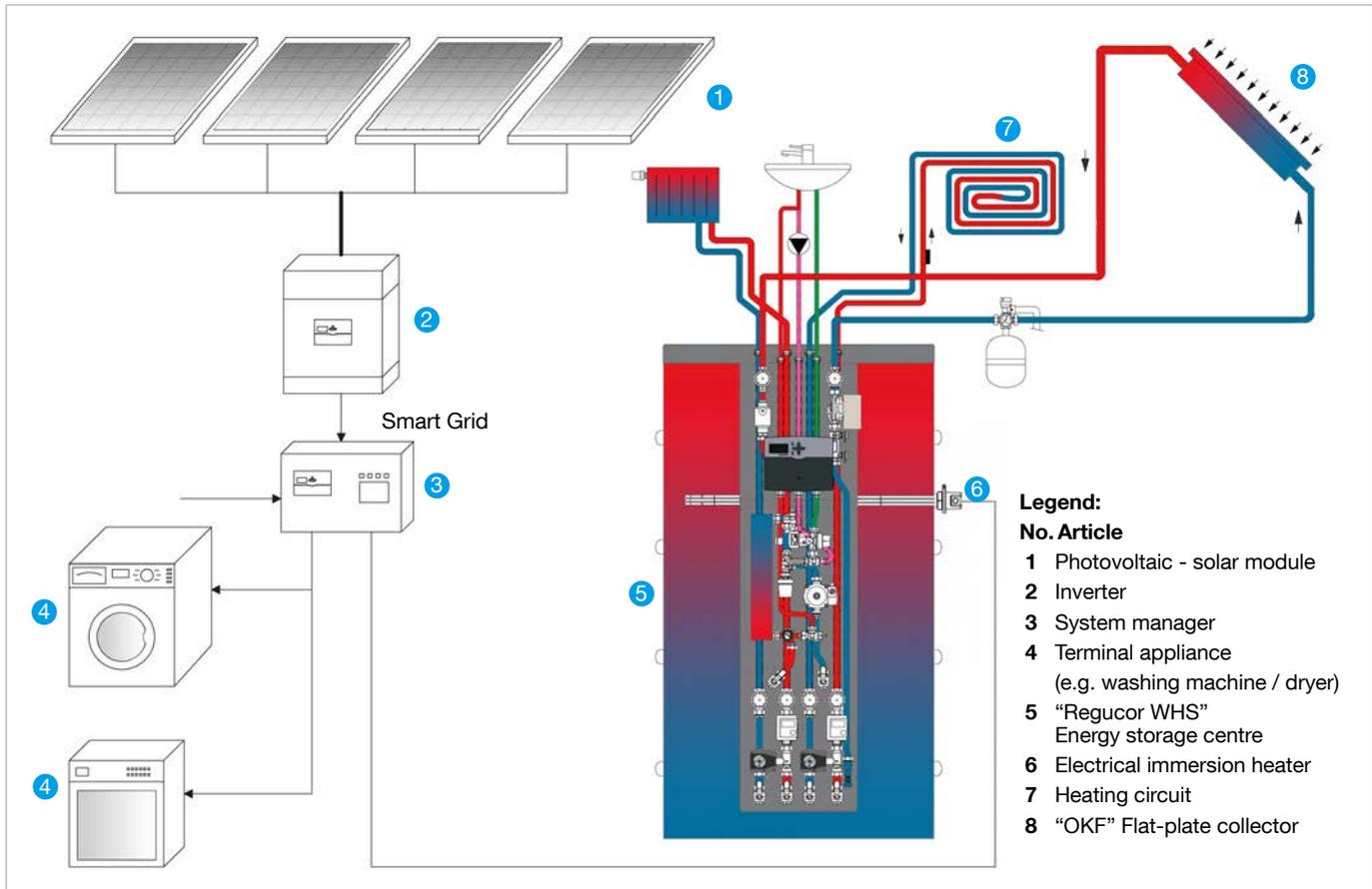
**4** “Regucor WHS” combined with **solid fuel boilers**, such as pellet or billet wood boilers.

The heating return should be connected to the lower storage cylinder connection pipe so that the maximum volume can be used for the solid fuel boiler.

Re-loading of the storage cylinder can be controlled via the system controller “Regtronic RS”. A maximum of two heating circuits can be connected.

When using the “Regumat RTA” stations for return temperature increase, the minimum return temperature amounts to approx. 55 °C and thus lies above the dew point. The formation of pitch is avoided.

Re-loading of the storage cylinder can be suppressed while it is loaded by solar energy.



Photovoltaic system / Smart Grid (example)

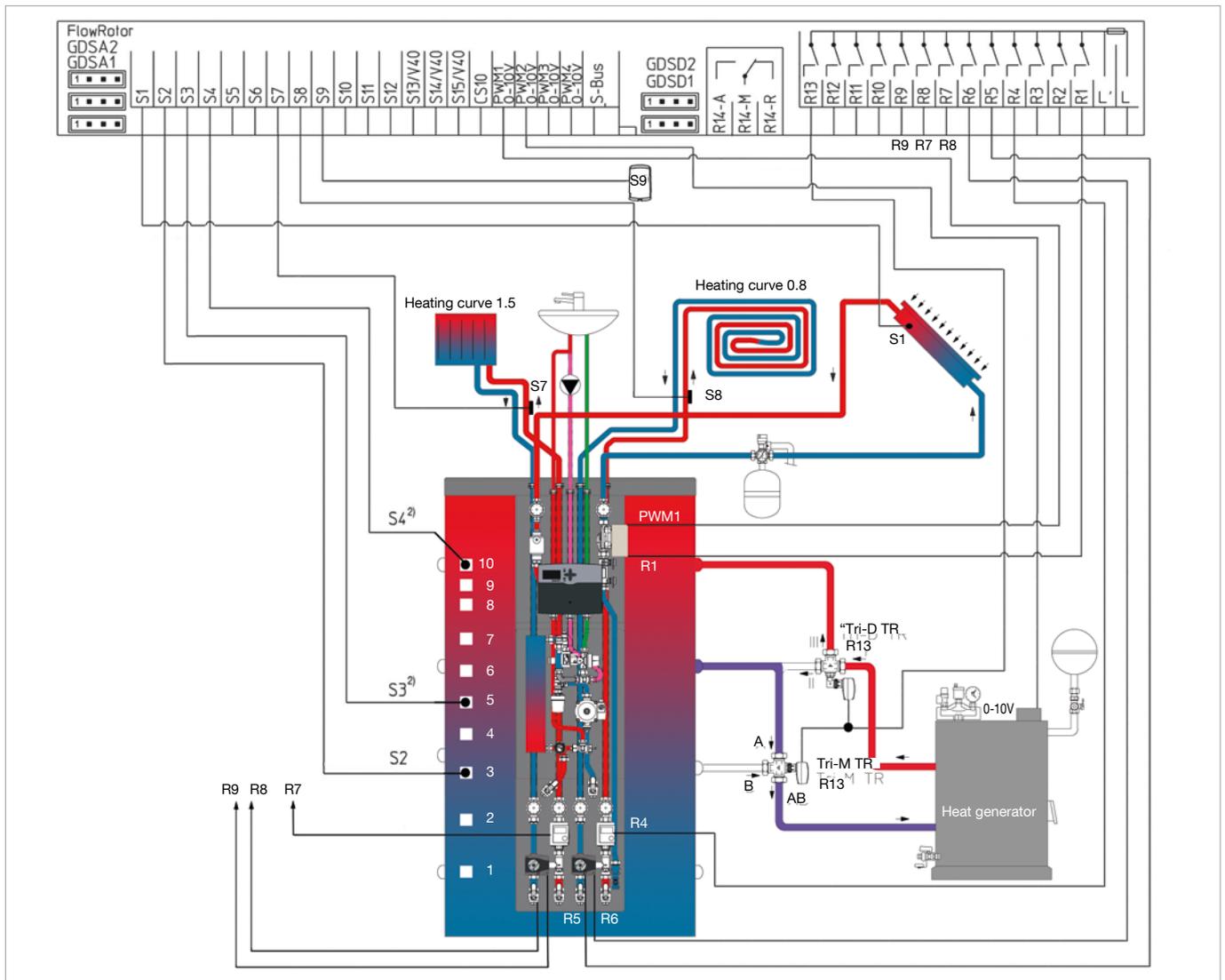


The term "smart grid" covers the communicative networking and control of electric generators, storage devices, consumers etc. in energy distribution networks in the area of electricity supply. They allow for an optimization and monitoring of the interconnected components. The aim is to secure the supply of energy on the basis of an efficient and reliable system operation. Surplus electricity can be used for hot water preparation and heating.

**Example:**

Smart-grid-compatible household appliances of the company Miele cooperate in the field of intelligent energy management. The aim is to allow the operators of photovoltaic installations to make efficient use of the self-generated electricity

Integration of a **Miele** solar dryer into an Oventrop energy storage centre "Regucor WHS"



Installation scheme: “Regucor WHS” with **two** weather guided variable temperature heating circuits and a conventional heat generator with heat demand and switching between the storage cylinder sections.

**Example: Pin assignment heat demand and switching between the storage cylinder sections:**

	Sensor/Relay/ Analogue outlet	Remark	Colour code / Actuator marking
Diverting valve “Tri-D TR”	R 13 <sup>1)</sup>	Storage cylinder switching (for hot potable water preparation)	Brown / L
Mixing valve “Tri-M TR”	R 13 <sup>1)</sup>	Storage cylinder switching (for hot potable water preparation)	Brown / L
Re-loading of the storage cylinder	PWM2 / 0-10 V	Heat demand 0-10 V	
Central storage cylinder sensor	S 3 <sup>1)</sup>	Reheating demand “Heating circuit”	
Upper storage cylinder sensor	S 3 <sup>1)</sup>	Reheating demand “Potable water part in stand-by motion”	

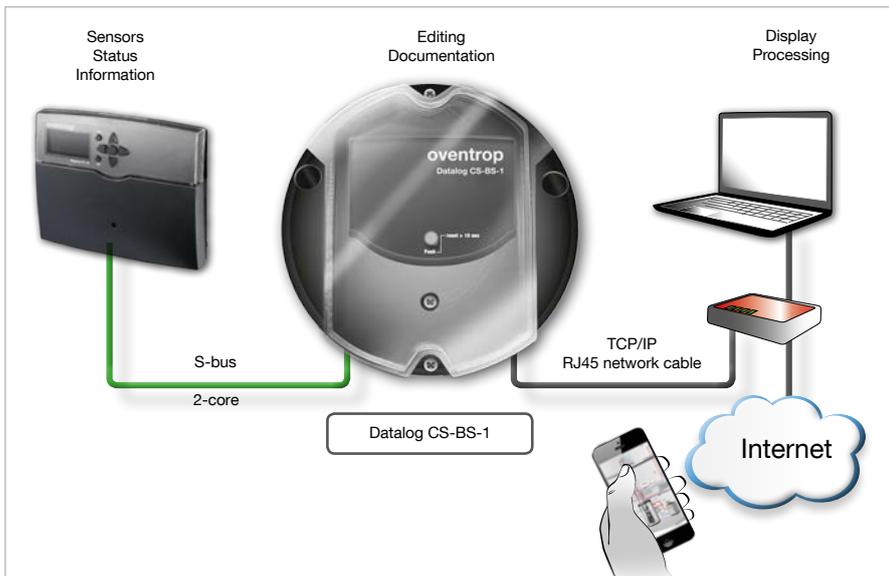
<sup>1)</sup> Freely selectable / recommended settings

As the “Regucor WHS” is supplied with an SD-Card which is preloaded with 8 standard systems, initial start-up on site is simplified and saves time. The functions and pin assignments of all installation schemes are detailed in the enclosed system description.

Re-loading of the storage cylinder for reheating of the heating circuits and for hot water preparation of the energy storage centre can either be carried out by the Oventrop system controller “Regtronic RS” or be left to the boiler control.

**Important:**

When using the controller “Regtronic RS”, the specifications in the installation manual of the heat generator must be observed!



System "DynaTemp CS-BS" as solution / "Data logger" as main product



Screenshot "Starting page of the Oventrop portal"

The controller "Regtronic RS" of the energy storage centre "Regucor WHS" can be extended by a data logger "CS-BS-1" (1 channel) or "CS-BS-6" (6 channels) for online visualisation.

Connected to the Internet, the data logger "CS-BS 1" (1 channel) or "CS-BS-6" (6 channels) is activated via the Oventrop portal which provides worldwide remote access to the data of a system via an Internet browser. An Internet connection and browser as well as access to the Oventrop portal are needed to use this service.

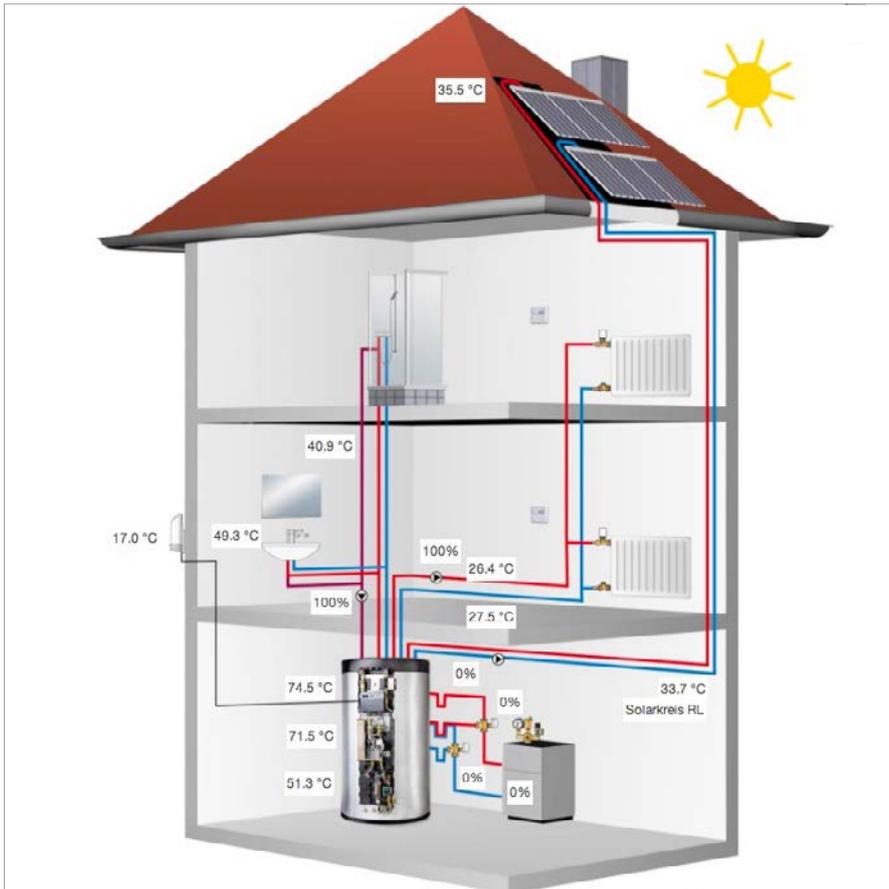
The Oventrop portal allows for remote servicing (via Internet) in real time (see also page 11). The system data and parameters can be checked and analysed at any time. Possible system errors can be detected remotely and corrected immediately.

Many common mobile devices, such as smartphones or tablets are supported.

Registration and activation of the data logger "CS-BS-1" (1 channel) or "CS-BS-6" (6 channels) is carried out under: <http://portal.oventrop.com>.

### Advantages of the Oventrop portal:

- Remote access via network/Internet
- Easy installation
- Easy access
- Comfortable and easy operation
- Automatic login to the Oventrop portal after activation of the data logger
- Display of the important system parameters
- Demo application without activated data logger
- Simulation without password protection via a public link



Exemplary installation

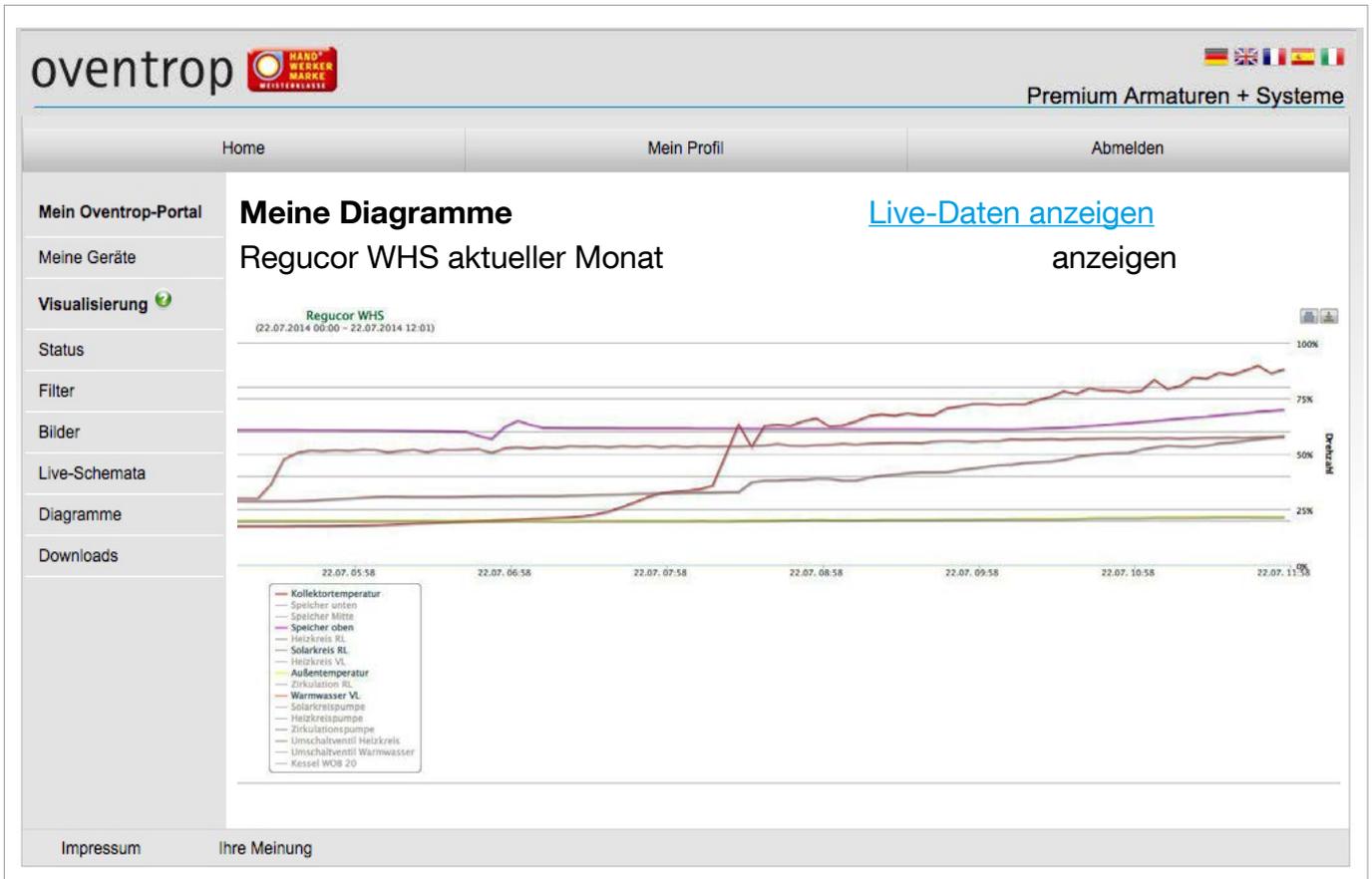
### Visualization of installations and systems

A live scheme visualizing the work performed by the installation can be called up and monitored via Internet in real time.

The portal provides the user with common standard schemes. Own schemes in the formats jpg, png or bmp may also be created. Sensor values and output status are displayed in the schemes.

### Visualization of charts (see screenshot "Performance chart")

All relevant measured values, such as the temperature of the collector and the heating and solar circuit, outside temperature etc. can be monitored and displayed graphically over weeks or months. Individual days, weeks or values can be selected as an option. All controller inputs or outputs can be displayed.



Screenshot "Performance chart"



“Regucor WH” Energy storage centre

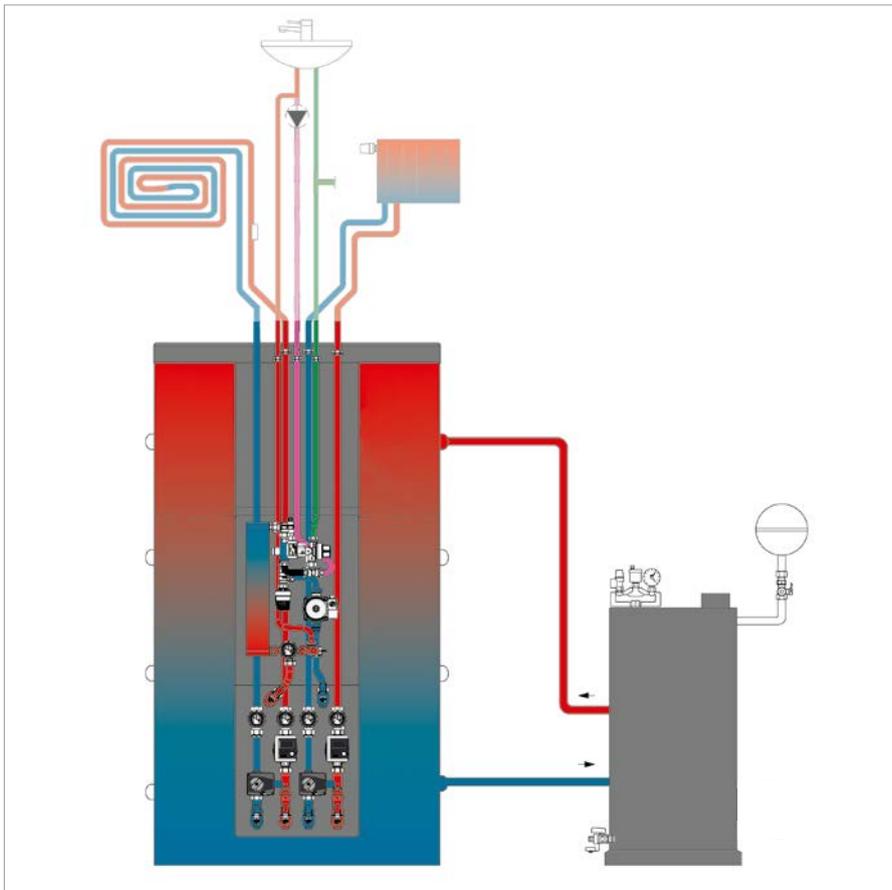
The energy storage centre “Regucor WH” serves the supply of detached and semi-detached houses with heat and hot potable water. The configuration is identical to the “Regucor WHS” but without solar station and without electronic controller. Upgrading of the solar plant is prepared; a solar heat exchanger is integrated in the storage cylinder.

The “Regucor WH” which allows for a time- and space-saving installation can be connected to different heat generators. The Oventrop energy storage centre “Regucor WH” consists of:

- Add-on group “Hot potable water preparation”
- Add-on group “Heating circuit”
- System storage cylinder
- Heat generator connection (boiler, heat pump, system controller)

Type	Description	Energy efficiency class rating	Item no.
800	Nominal content 706 litres Heat exchanger made of stainless steel, copper brazed	“C”	1383460
1000	Nominal content 900 litres Heat exchanger made of stainless steel, copper brazed	“C”	1383465

Models



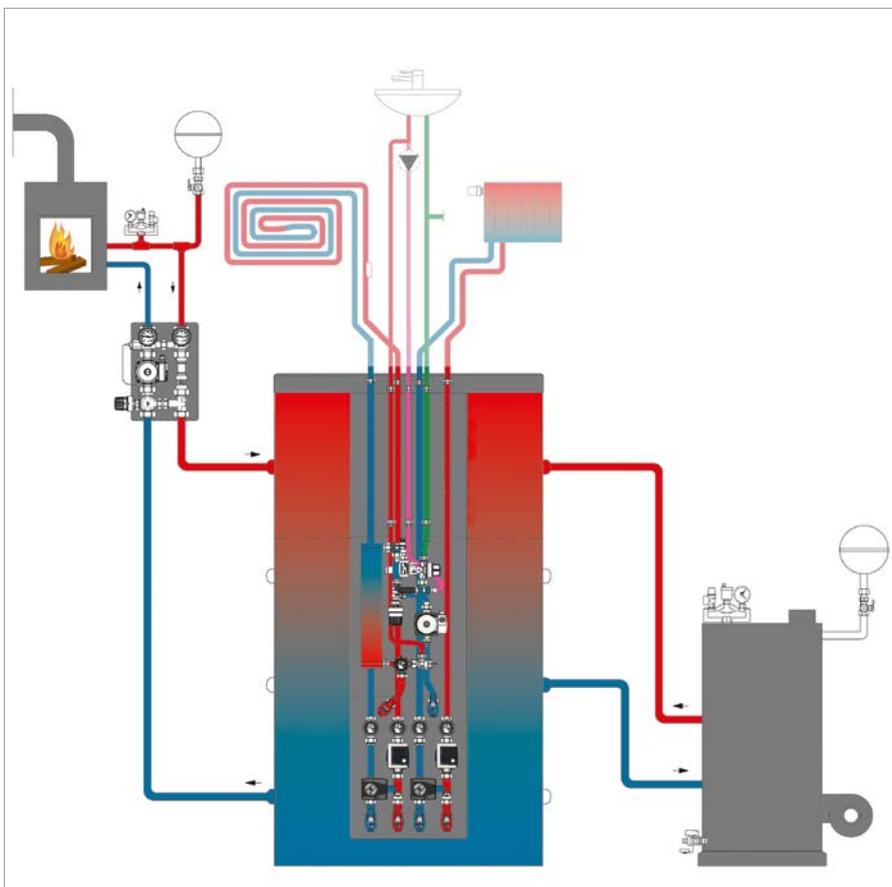
1

The “Regucor WH” can be combined with different heat generators and features all necessary connections.

**1 “Regucor WH” combined with a miniature CHP.**

A miniature CHP is connected via the upper storage cylinder connection.

The storage cylinder volume of the “Regucor WH” guarantees a long operating time of the miniature CHP. The complete storage cylinder volume can be used and is not additionally heated by solar heat return.



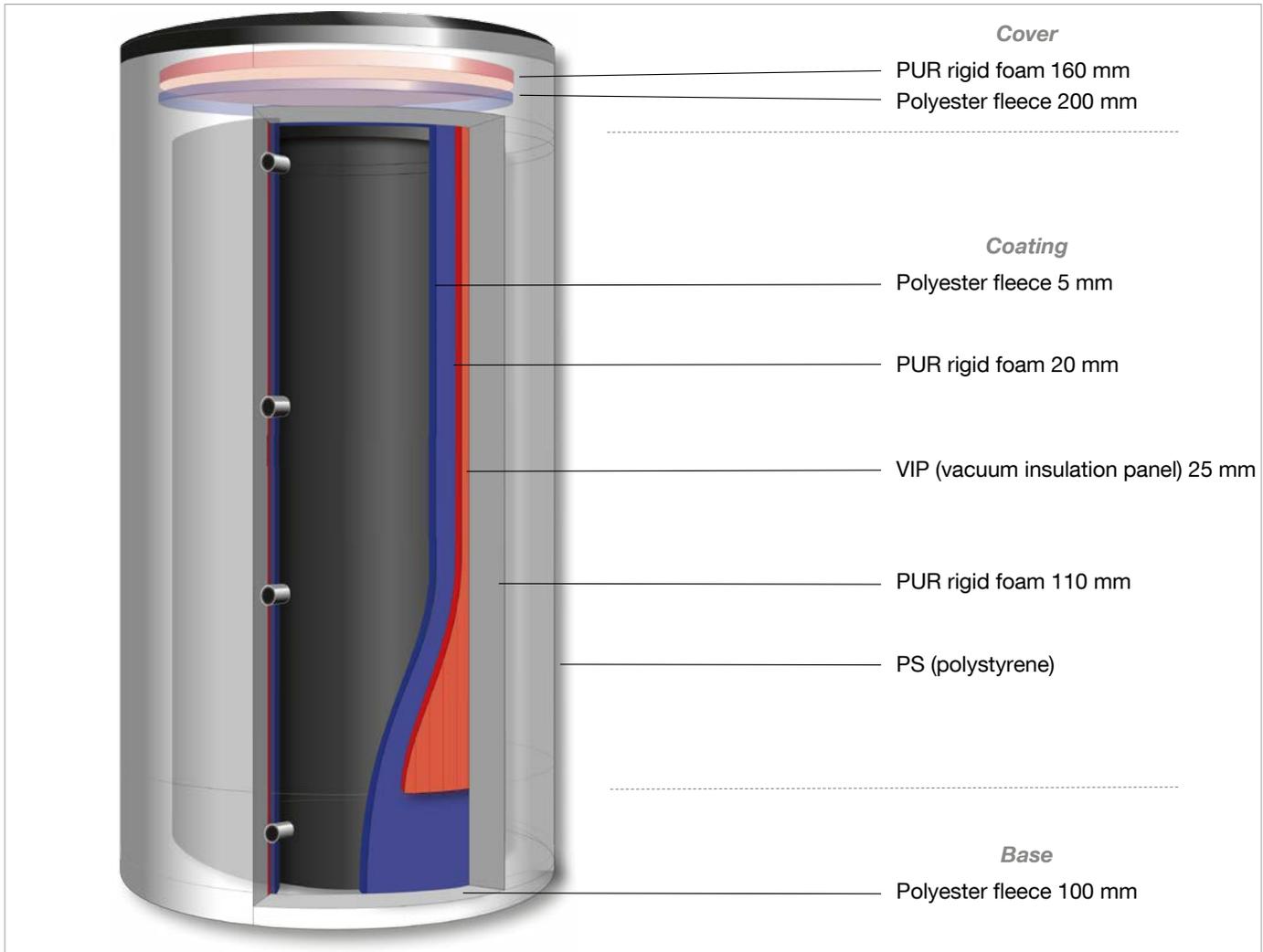
2

**2 “Regucor WH” combined with conventional heat generators, such as oil or gas boilers and additional water heating stove.**

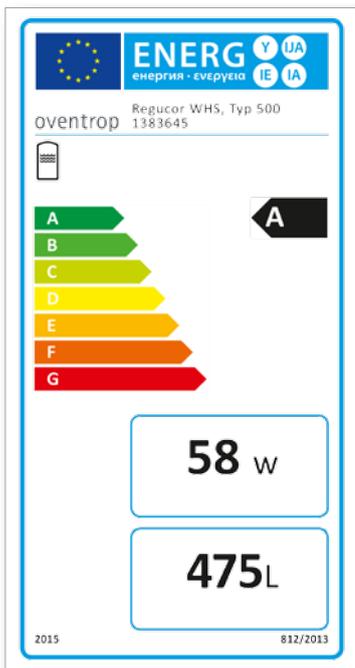
In installations with oil or gas boilers with additional water heating stove, the order of the corresponding return pipes must be observed.

When using the “Regumat RTA” stations for return temperature increase, the minimum return temperature amounts to approx. 55 °C and thus lies above the dew point. The formation of pitch is avoided.

The “Regucor WH” offers a sufficient storage cylinder volume for the water heating stove and high heat absorption is guaranteed.



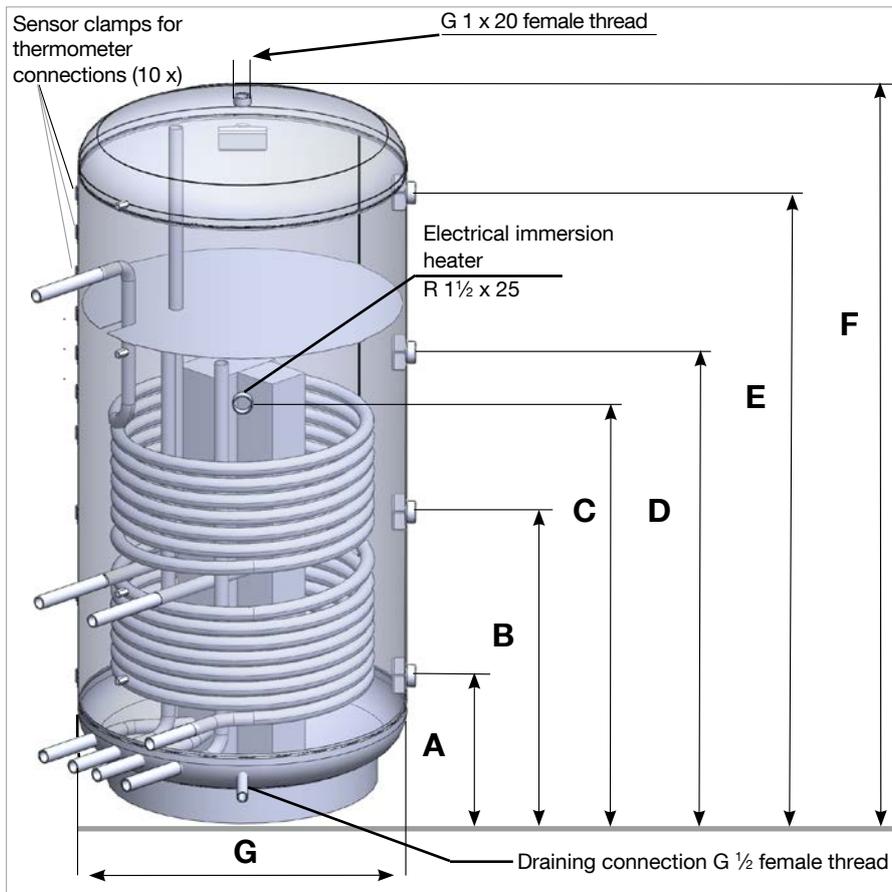
Insulation layers of the energy storage centre “Regucor WHS”, type 500, **energy efficiency class “A” rating**



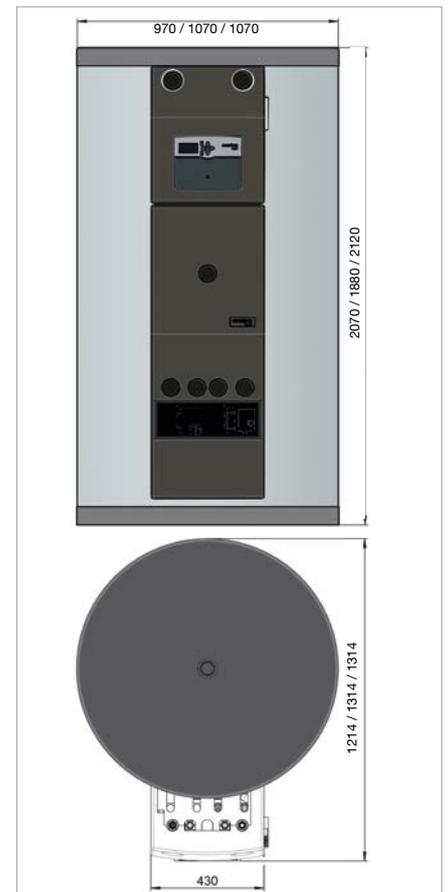
The Oventrop energy storage centre “Regucor WSH”, type 500, feature a high-efficiency thermal insulation (energy efficiency class “A” rating).

The insulation minimizes heat loss, saves energy and allows access to optimum energy efficiency classes.

The other models comply with the energy efficiency class “C” rating.



1



3

**1-3** Dimensions and technical specifications of the energy storage centre "Regucor WHS", types 500, 800 and 1.000.

No.	Technical data	Unit	Type 500	Type 800	Type 1000	Connection size
	Energy efficiency class		A			
A	Connection	mm	220	260	260	G 1 1/2 female
B	Connection	mm	630	680	760	G 1 1/2 female
C	Electrical immersion heater	mm	975	1110	1110	R 1 1/2 x 25
D	Connection	mm	1050	1090	1260	G 1 1/2 female
E	Connection	mm	1460	1500	1770	G 1 1/2 female
F	Total height (without insulation)	mm	1710	1750	2030	
G	Diameter (without insulation)	mm	650	790	790	
	Max. pivot height (without insulation)	mm	1770	1820	2095	
	Thickness of storage cylinder insulation	mm	160	140	140	
	Permissible operating pressure	bar	3	3	3	
	Permissible operating pressure (coil)	bar	10	10	10	
	Permissible operating temperature	°C	95	95	95	
	Permissible operating temperature (coil)	°C	110	110	110	
	Solar heating coil	m <sup>2</sup>	2.4	3.1	3.4	
	Weight (including insulation)	kg	approx. 190	approx. 194	approx. 210	

2



1



2



3



4



5



6

**1** Extension heating circuit  
"Regumat M3-130" DN 20  
**Item no.: 1383575**

**2** Potable water circulation set  
"Regumaq XH"  
with pump **Item no.: 1381047**  
without pump **Item no.: 1381049**

**3** Connection sets  
for the connection of the heating circuit  
add-on group "Regumat M3-130" DN  
20 to the heating circuit and for the  
connection of the hot potable water  
preparation add-on group "Regumaq  
XH" DN 20 to the potable water circuit  
**Item no.: 1383580**

for the connection of the heating circuit  
add-on group "Regumat M3-130" DN  
20 to the heating circuit  
**Item no.: 1383581**

**4** Extension  
for connection pipe for storage cylinder  
loading **Item no.: 1383593**  
for electrical immersion heater  
**Item no.: 1383592**

**5** "Regusol LH-130" Extension set  
solar for "Regucor WH"  
**Item no.: 1383480**

**6** "Regtronic RS" Extension set for  
"Regucor WH" **Item no.: 1383485**



1



2



3



4

The “Regucor WHS” and the following Oventrop solar components complement each other usefully:  
**1** Flat-plate collectors “OKF-CK22” and “OKF-CS22” tested according to DIN EN 12975 and certified according to “SolarKeymark”.

**2** Tube collectors “OKP-10” and “OKP-20” tested according to DIN EN 12975 and certified according to “SolarKeymark”.

**3** Special expansion tank for solar plants with a volume of 18 l, 25 l, 33 l, 50 l and 80 l.

Permissible operating temperature: 70 °C

Max. operating pressure: 10 bar  
 Diaphragm according to DIN 4803 T3. Approval according to directive 2014/68/ EU.

**4** Oventrop offers various accessories for the connection of the collectors (e.g. stainless steel corrugated pipes for roof conduit, connection fittings etc.).

**5** Combination options “Regucor WHS” with solar systems (roof hooks, etc. are to be chosen separately).

	Item no.	“OKP-20” tube collector Item no. 1361231		“OKF CK-22” Flat-plate collector Item no. 1361340		“OKF CS-22” Flat-plate collector Item no. 1361345	
Number of collectors		4	5	4	5	4	5
<b>“Regucor WHS”</b>							
Type 800 (2-4 persons) recommended collector surface 15 - 20 m <sup>2</sup>	<b>1383550</b> <b>1383562</b>	1		1		1	
Type 1000 (4-6 persons) recommended collector surface 15 - 20 m <sup>2</sup>	<b>1383555</b> <b>1383567</b>		1		1		1
<b>Collector connection set “OKP”</b>							
Connection set 100 mm (set = 2 pieces)	<b>1361622</b>	3	4				
U-bend for the connection of the return pipe to the supply pipe	<b>1361295</b>	1	1				
DN 20 roof conduit, G 1 collar nut	<b>1361672</b>	1	1				
<b>“OKF” rooftop installation incl. accessories</b>							
Basic set for two collectors	<b>1361380</b>			1	1	1	1
Extension set for each additional collector	<b>1361381</b>			2	3	2	3
<b>Insulation</b>							
Insulation set (set = 2 x 0.5 m)	<b>1361623</b>	2	2	1	2	1	2
<b>Connection fittings</b>							
DN 20, G 1 x G 1 (set = 2 pieces)	<b>1369078</b>	1	1				
G ½ Ø 18 mm solder tailpipe (2 pieces included in the basic set 1361380)				1	1	1	1
<b>Expansion tank</b>							
25 l	<b>1361422</b>			1		1	
33 l	<b>1361423</b>	1	1		1		1
<b>Heat transfer liquid</b>							
10 l	<b>1361690</b>	1		1	1	1	1
25 l	<b>1361691</b>	1	2	1	1	1	1

Subject to technical modifications  
without notice.

Private persons may purchase our  
products from their qualified installer.

Presented by:

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