THERMAL ENERGY STORAGES

Werner Weiss

AEE - Institute for Sustainable Technologies (AEE INTEC)
A-8200 Gleisdorf, Feldgasse 19
AUSTRIA

Capacity of a Water Storage (calc)

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$$Q_s = (m\ C_p)\ \Delta T$$

Q_s	total heat capacity of the storage tank	[kWh]
m	volume of the storage tank	[m^3]
C_p	heat capacity of water	[1.16 kWh/m^3K]
ΔT	temperature difference - hot water temperature and cold water temperature	[K]

Capacity of a Water Storage (calc)

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1. Capacity of a domestic hot water storage?

2. Size of a seasonal storage for space heating?

Combi System for a Single Family House

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Combi System for a Single Family House

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Combi System for a Single Family House

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Storage Tank
for Natural Circulation Systems

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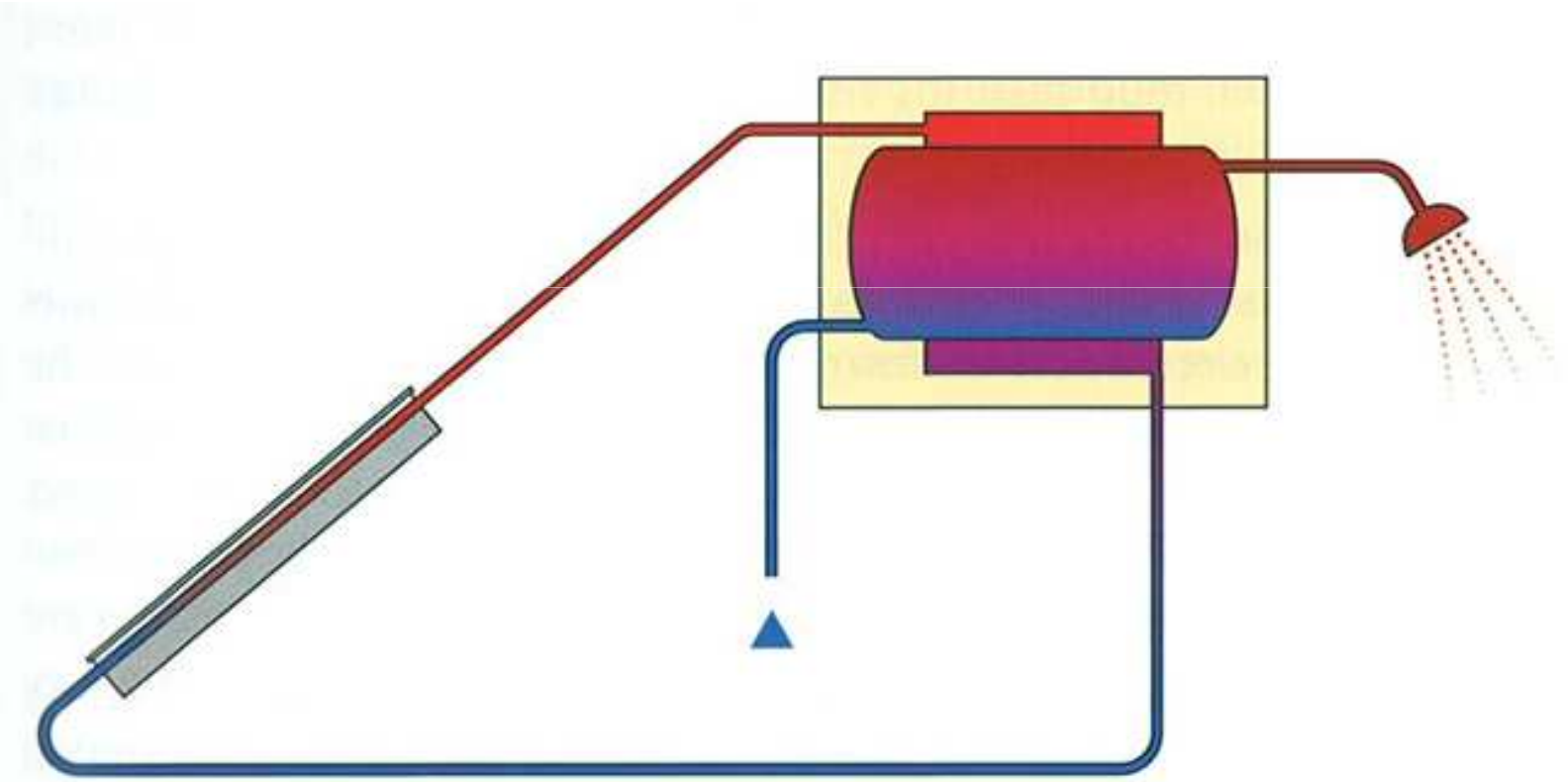
Development Cooperation



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THERMOSYPHON SYSTEMS

THERMOSYPHON SYSTEMS

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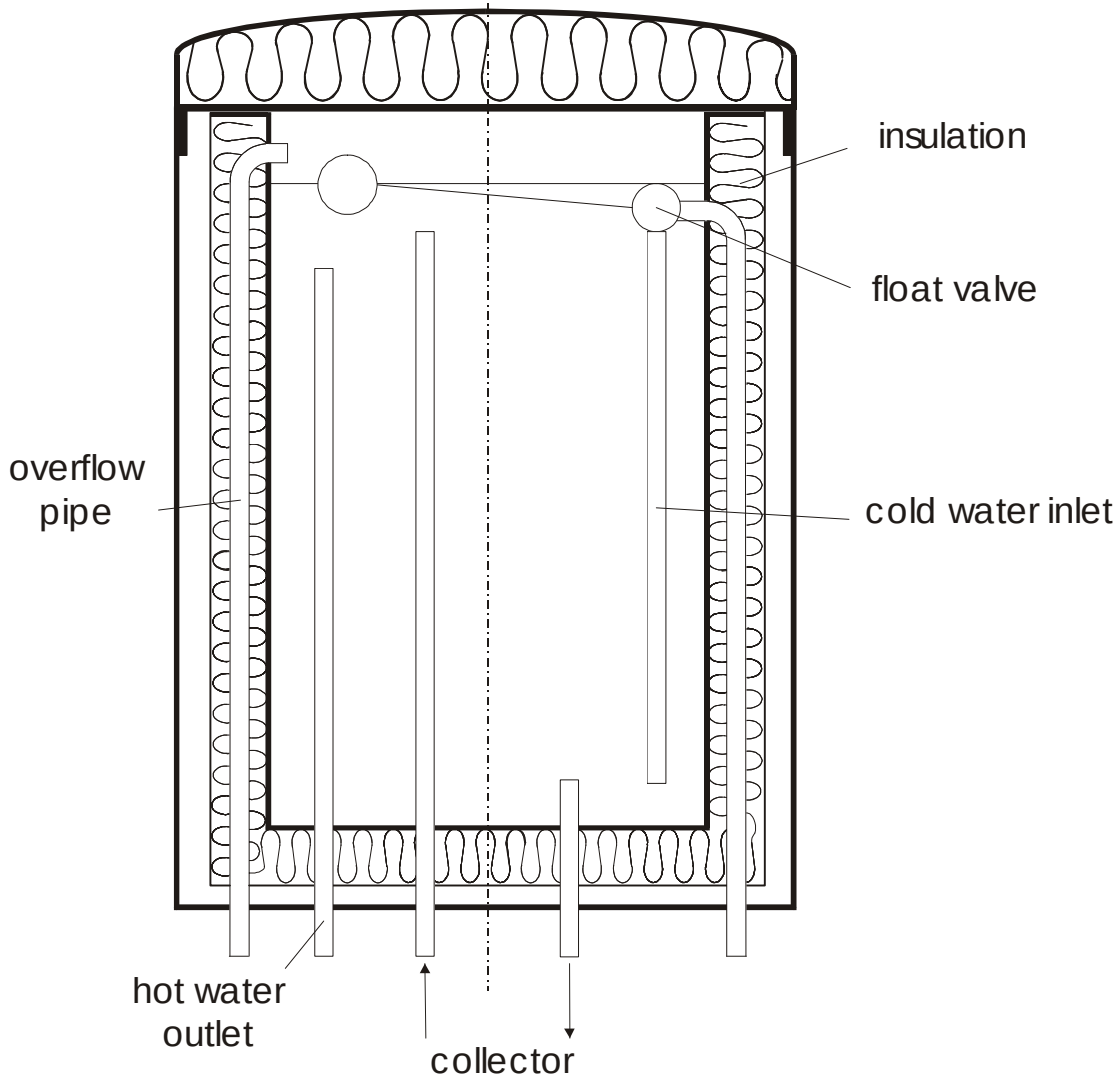

THERMOSYPHON SYSTEMS

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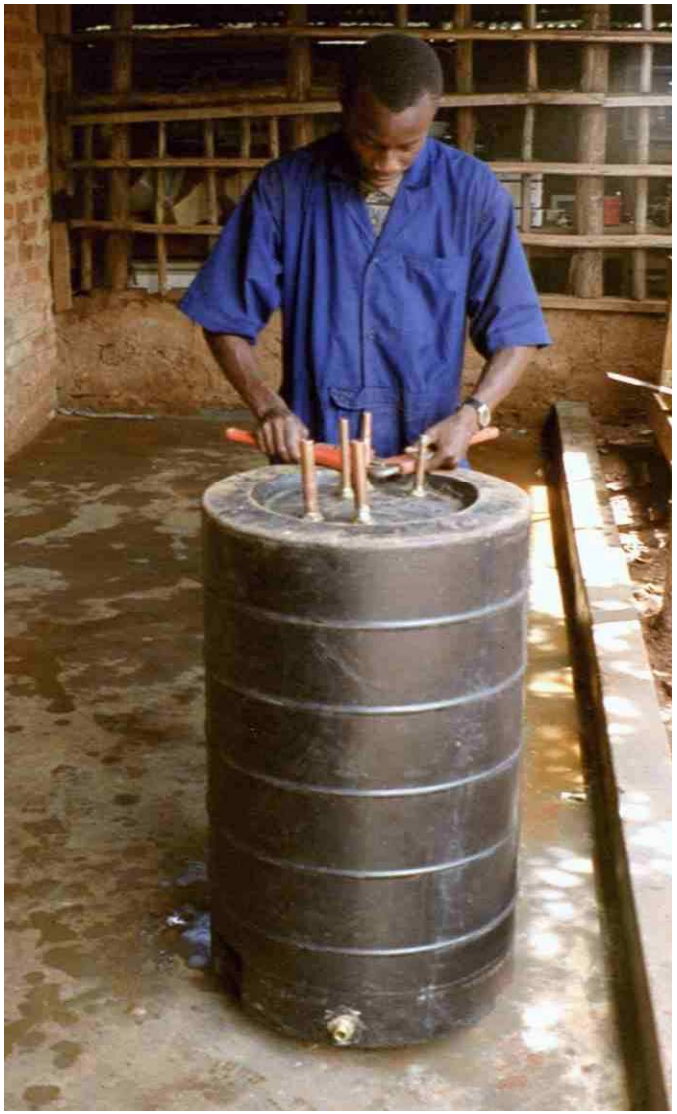

Pressurised Storage Tank

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Storage tanks used for domestic hot water systems

are filled with potable water and must therefore comply with high standards of hygiene. The storage tank has also to withstand corrosion in the presence of oxygen (contained in the potable water).

In order to fulfil these requirements the following materials are used for manufacturing domestic hot water tanks:

- Stainless steel
- Enamel-coated steel
- Galvanised steel
- Plastic
- Copper

Hot water storage for a thermosyphon system

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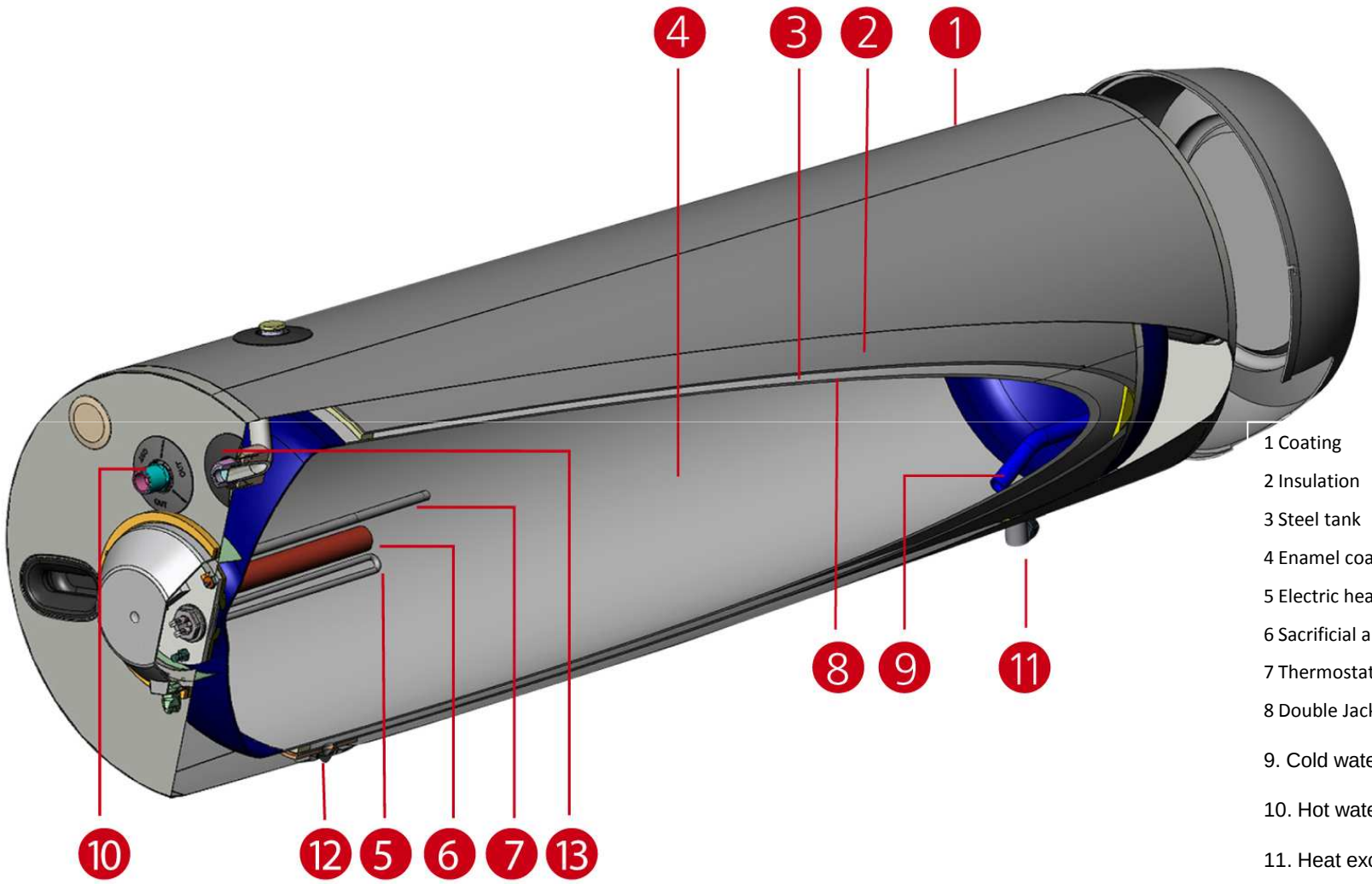

1 Coating
2 Insulation
3 Steel tank
4 Enamel coating
5 Electric heating element
6 Sacrificial anode
7 Thermostat
8 Double Jacket Heat Exchanger
9. Cold water inlet
10. Hot water to user
11. Heat exchanger inlet
12. Heat exchanger outlet
13. Heat Exchanger Safety Valve

Source: Chromagen

Hot Water Storage – Solarmatics, ZIM

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Hot Water Storage – Solarmatics, ZIM

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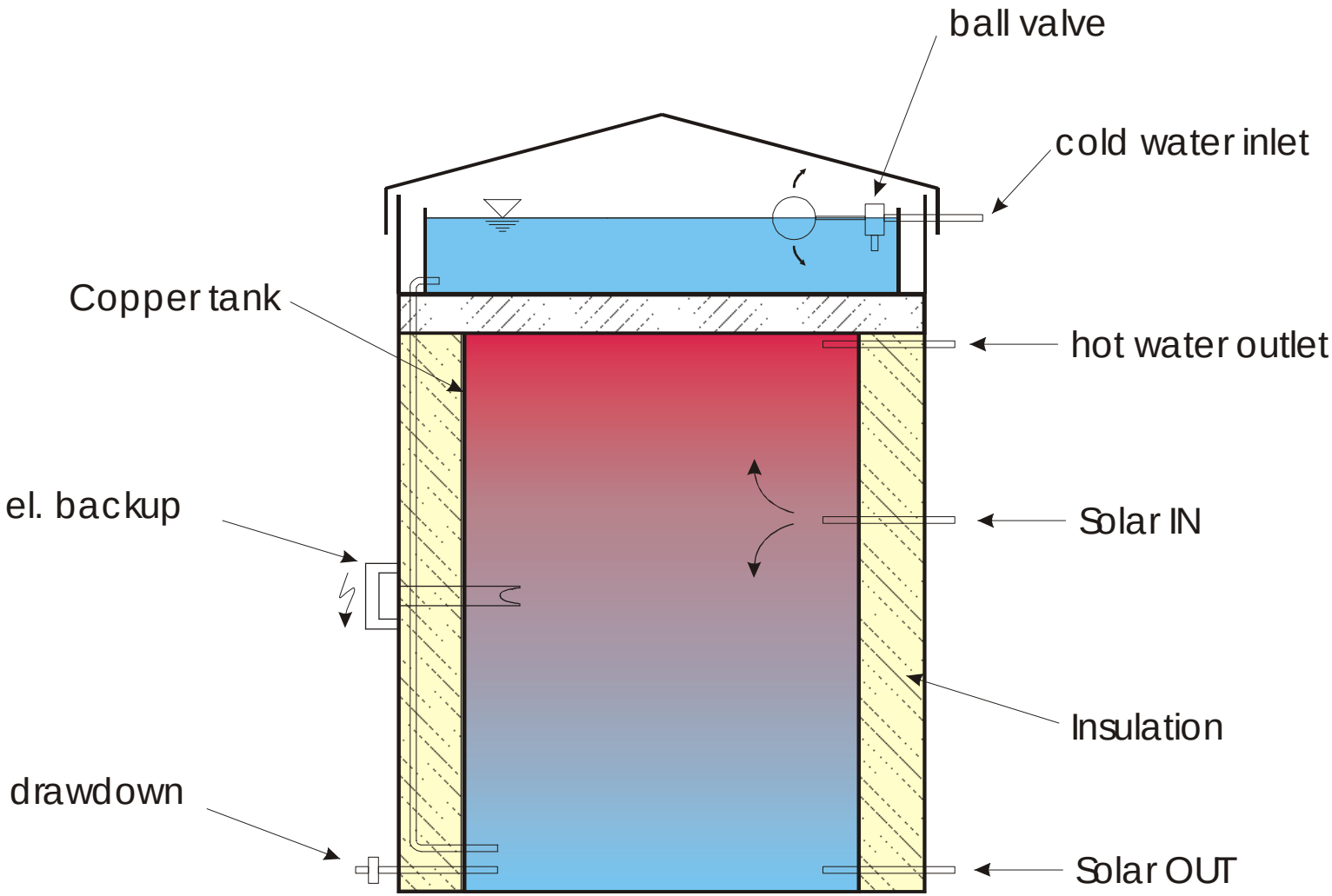

Hot Water Storage – Solarmatics, ZIM

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Storage tanks for direct coupling of evacuated tube collectors

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Source: Easy Solar, South Africa

Domestic Hot Water Tank

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Domestic Hot Water Tank

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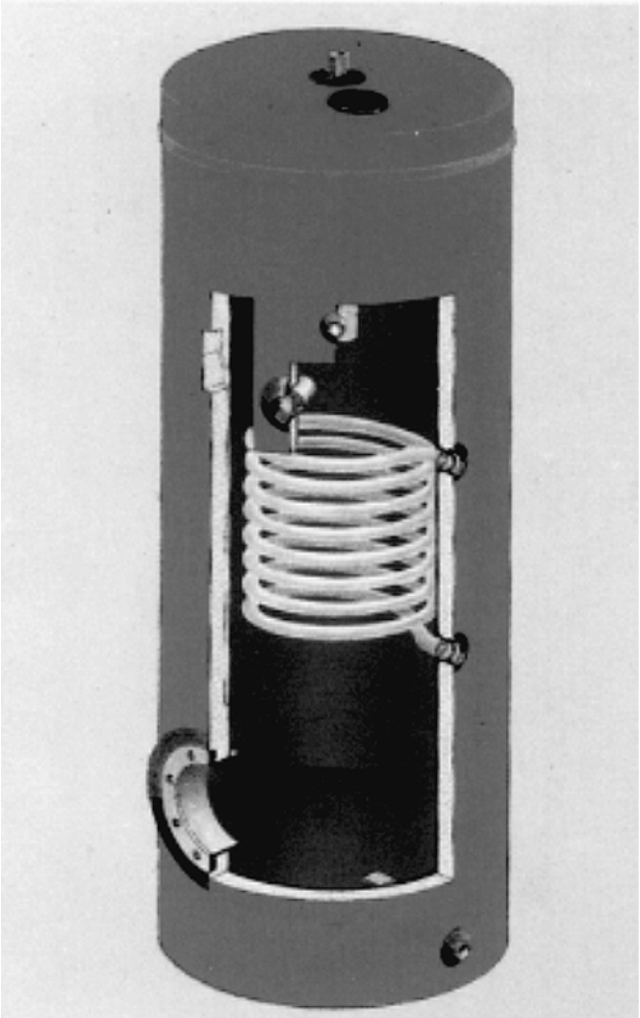

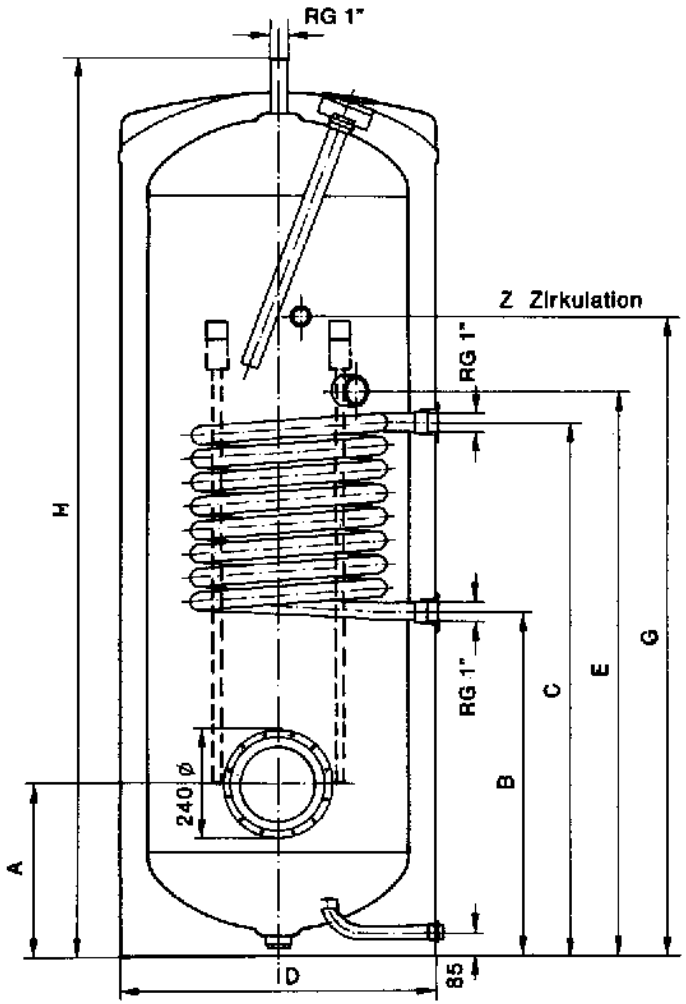

Domestic Hot Water Tank

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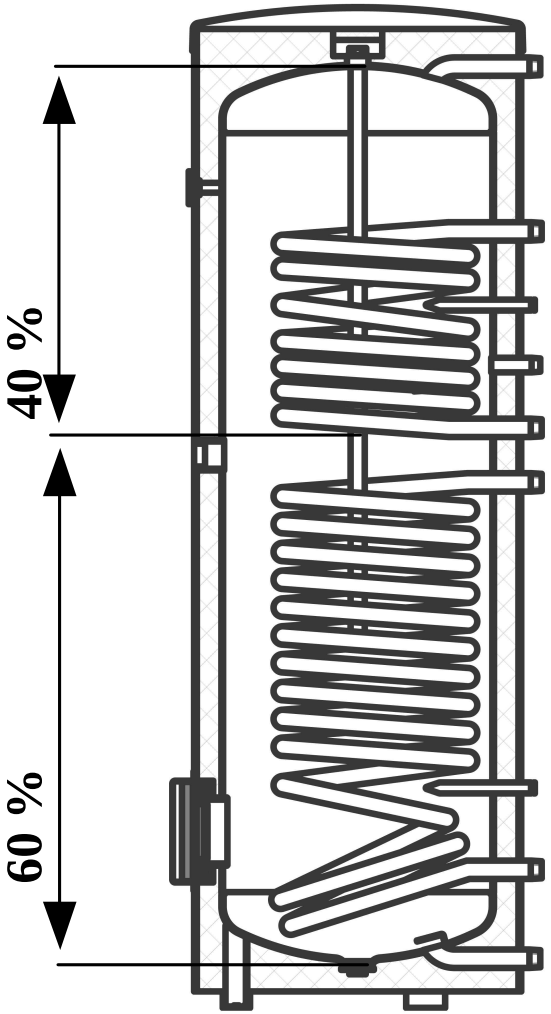

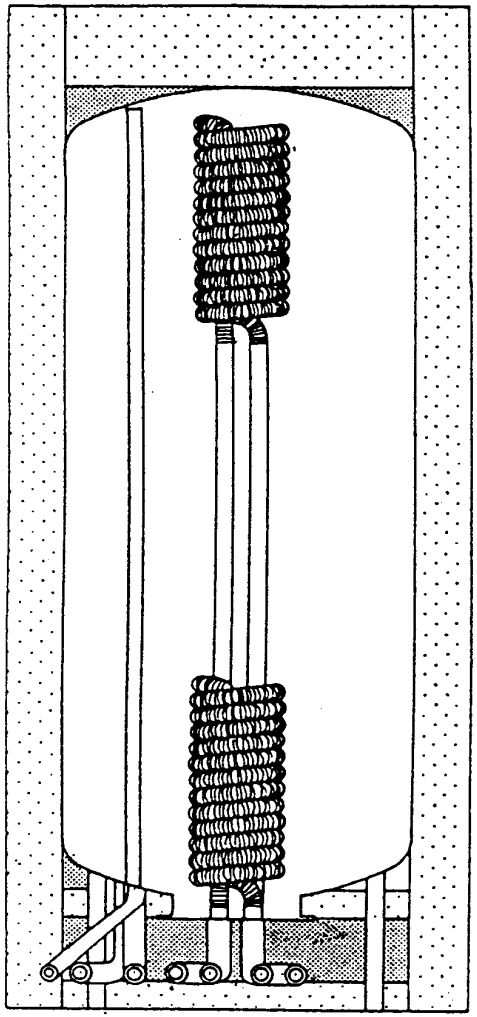

Water storage
How to improve « exergy density » ?

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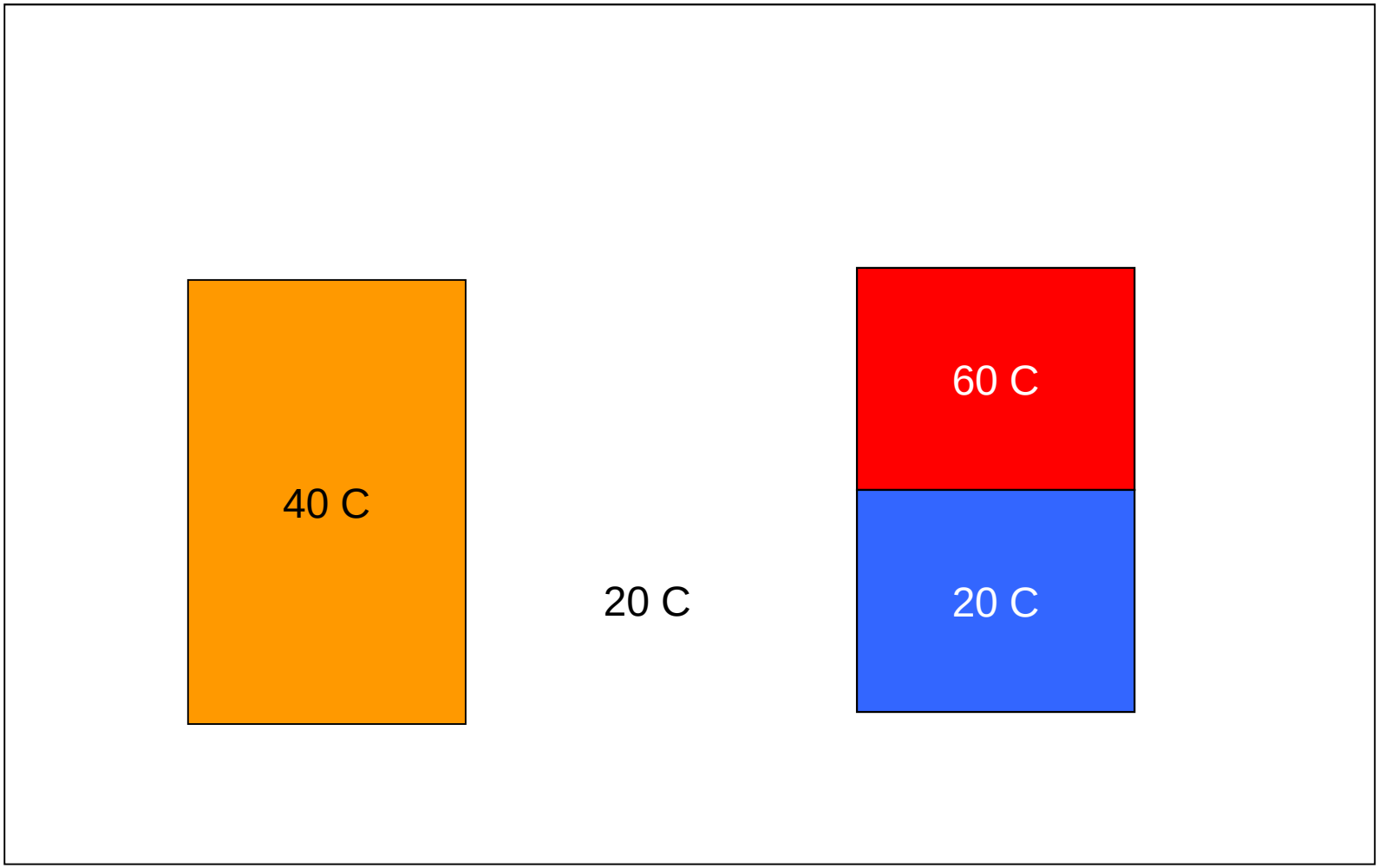

BUFFER TANKS

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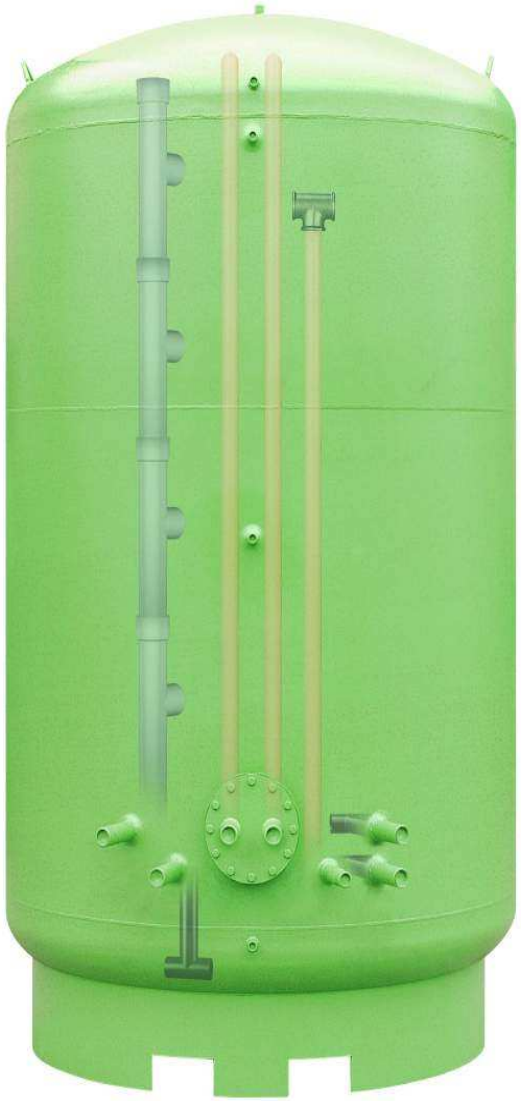

STRATIFIER

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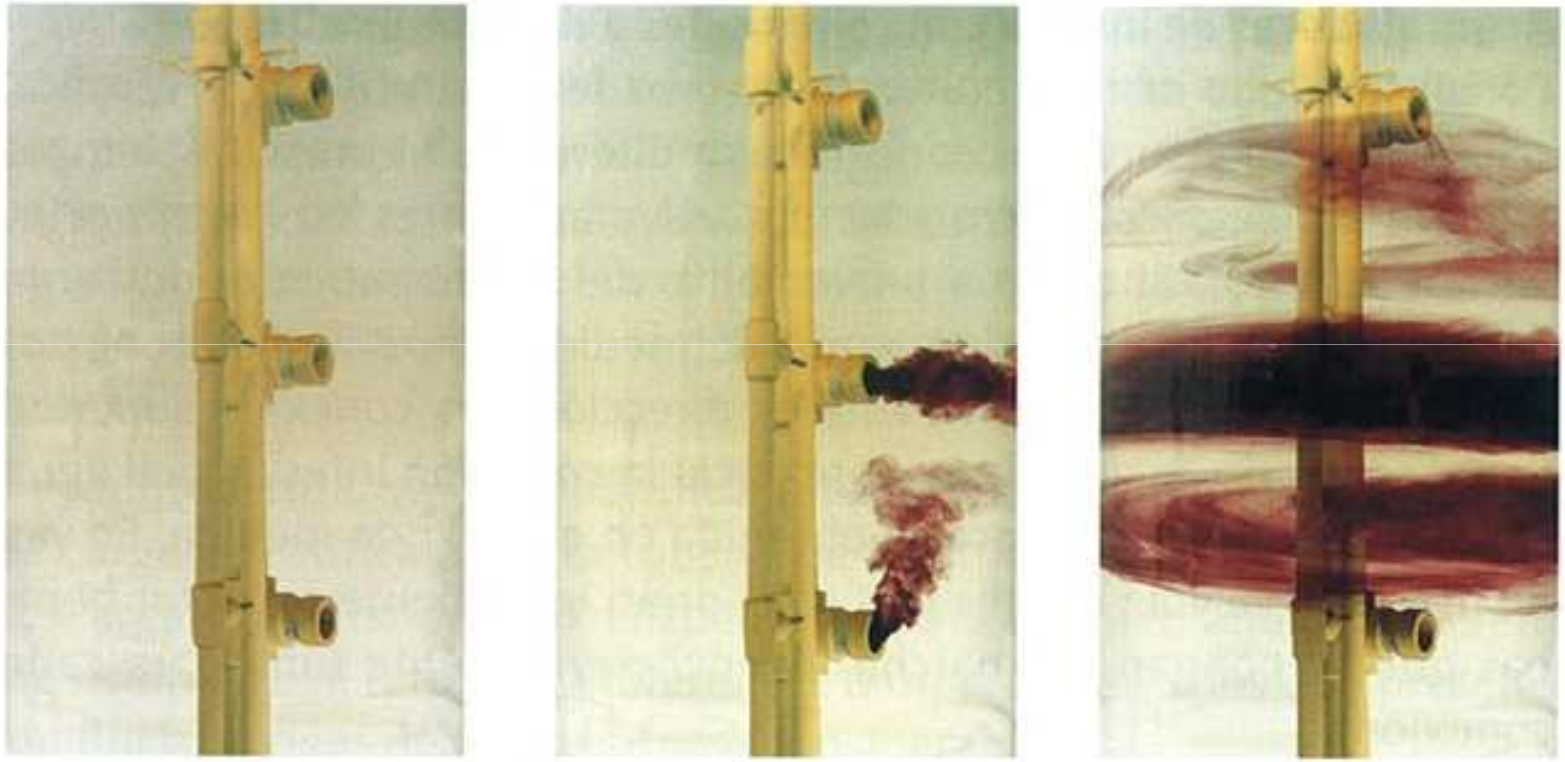

Source: SOLVIS

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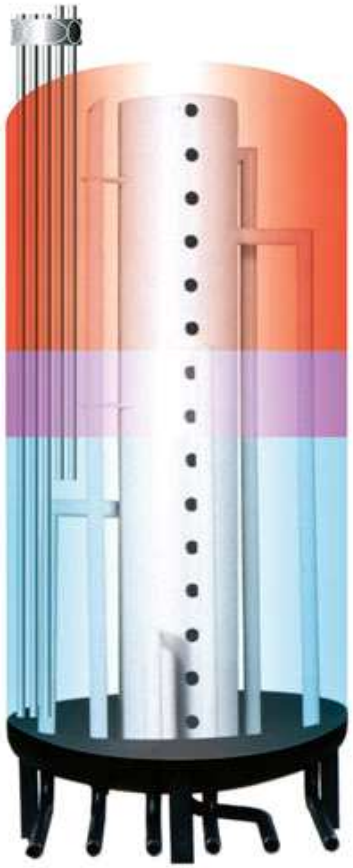
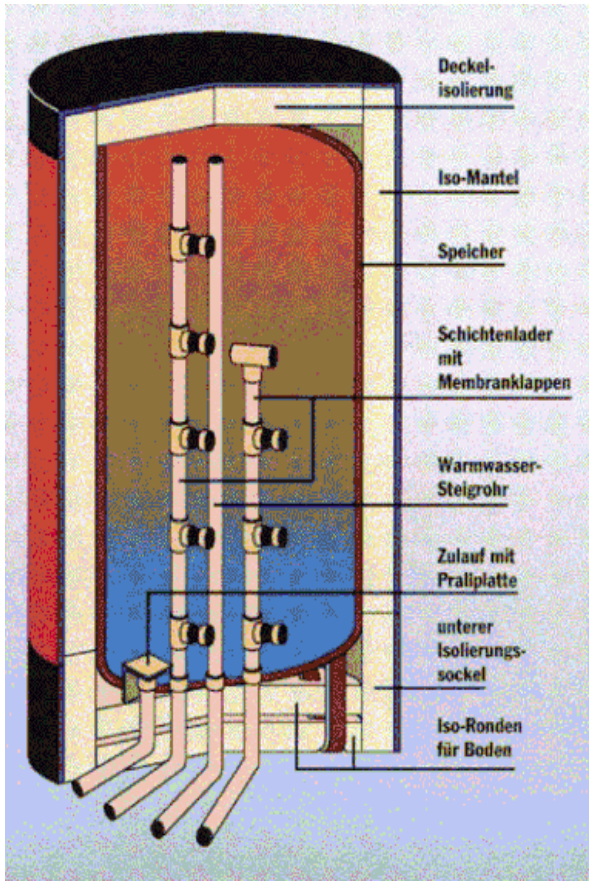
Hot water tanks with stratification devices





Sources from left to right: Solarklar, TiSun and Solvis

COMBI TANKS

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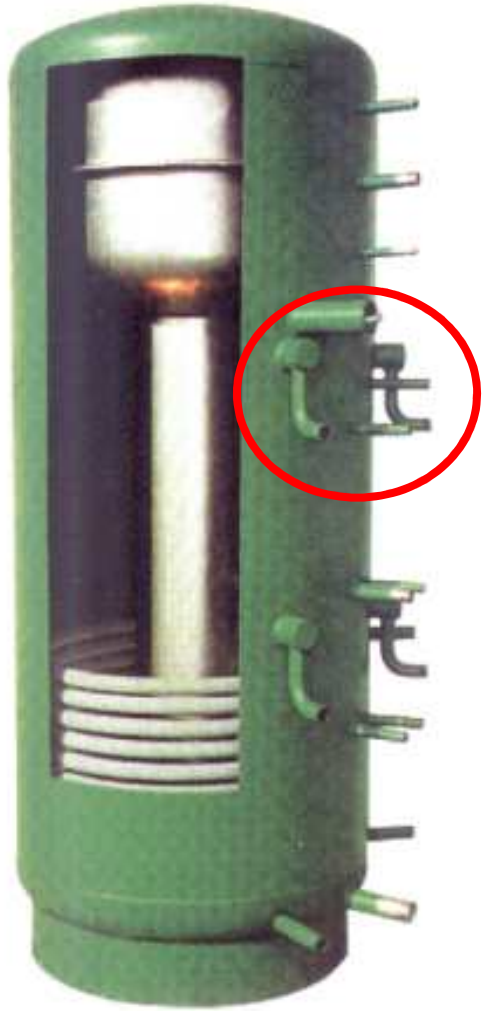

Heat Losses

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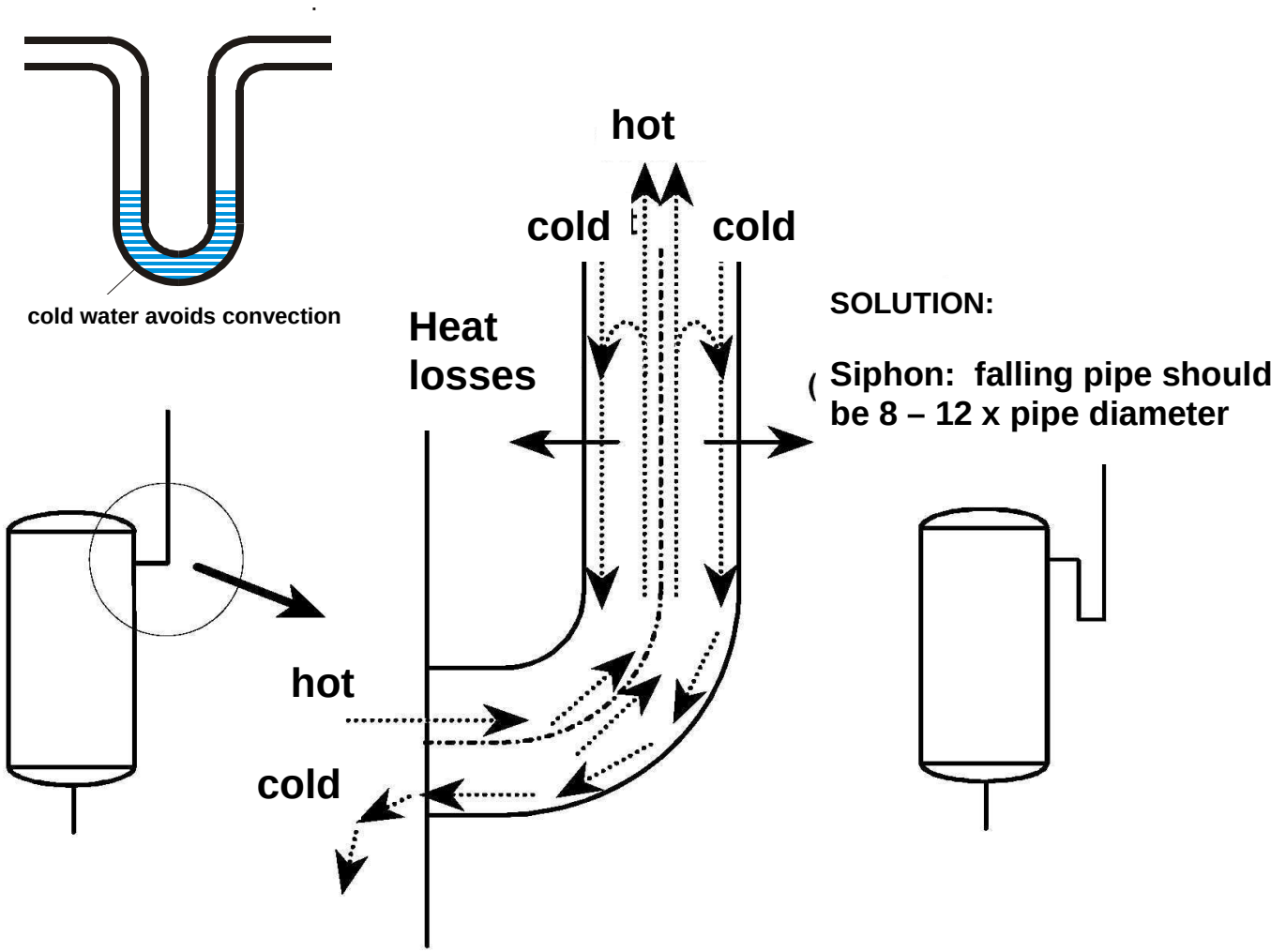

HEAT LOSSES

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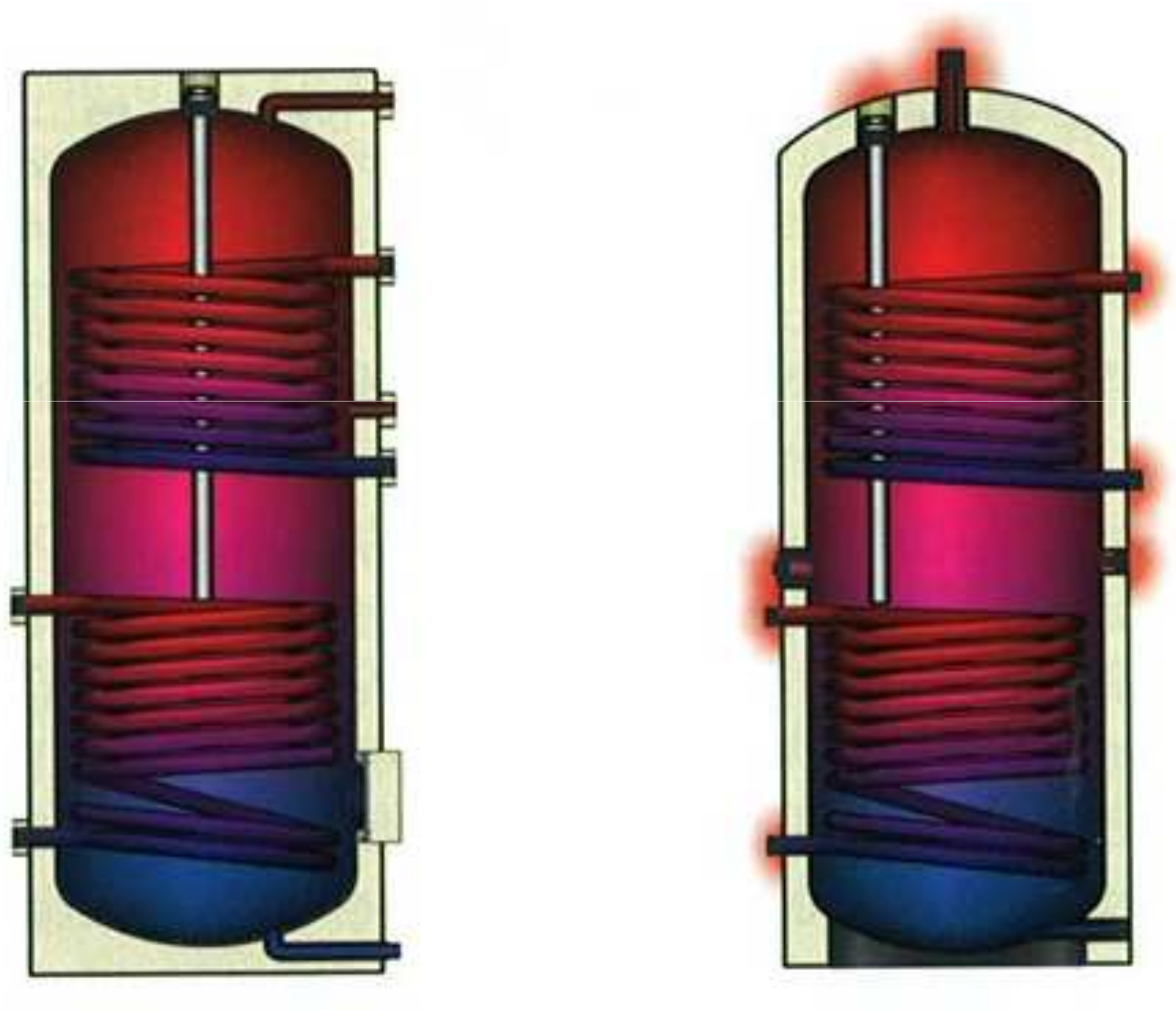

HOT WATER DISTRIBUTION

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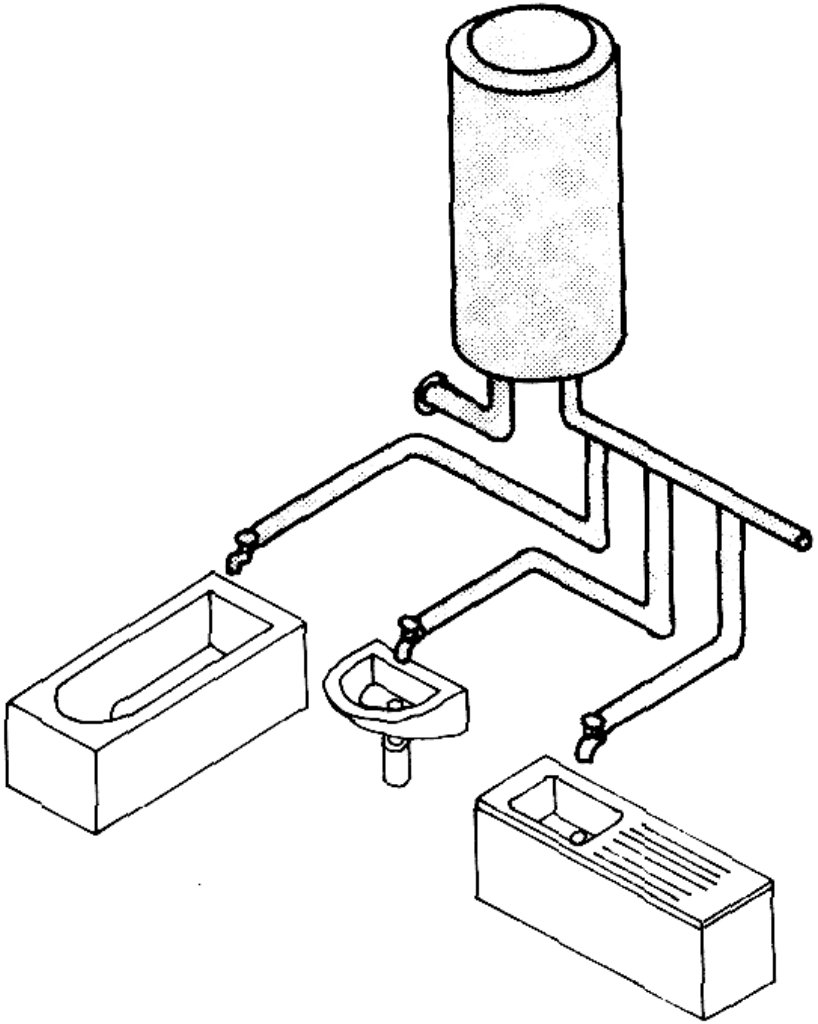

HOT WATER DISTRIBUTION OF A MULTIPLE FAMILY DWELLING

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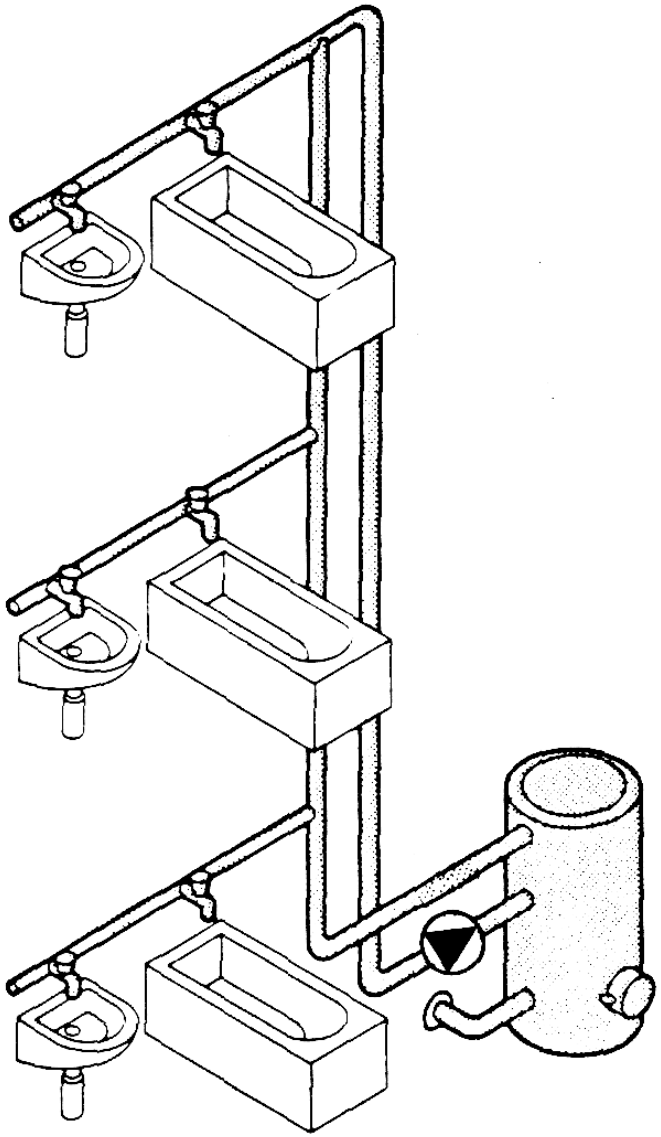

ENERGY STORAGE
THE KEY ISSUE FOR THE FUTURE

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