

Energy recovery

Wort boiling and saving of resources in line with each other



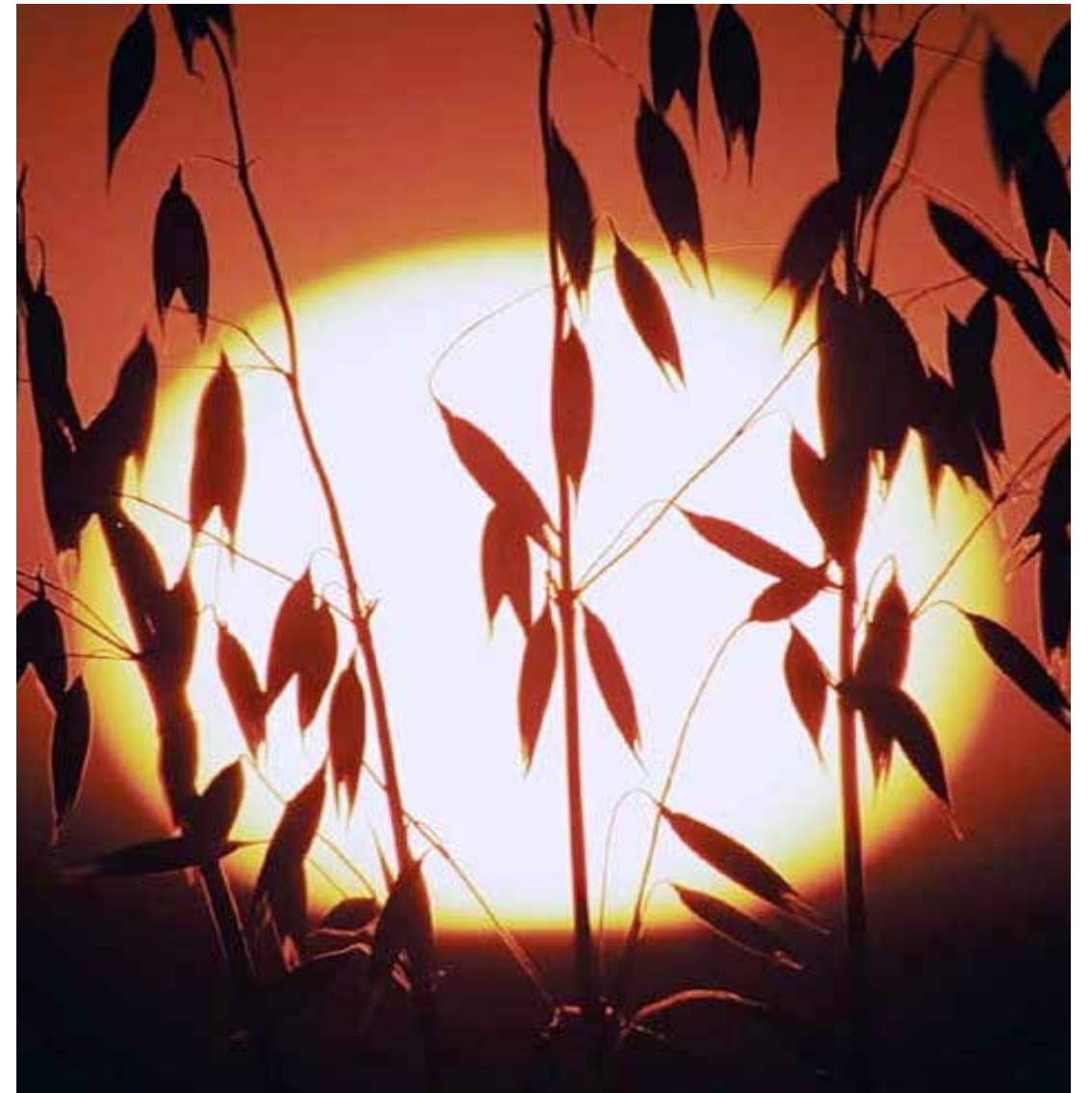
Saving resources and increased beer quality

The recovery of energy must be specially adapted to the brewing process. During the production of beer 25 – 35 percent alone of thermal energy is used for wort boiling. This demand for energy requires a large quantity of fuel. The energy recovery for wort boiling reduces the demand on primary resources – an advantage which has a positive effect on the production costs.

For wort boiling, gentle heating improves the beer's foaming characteristics, increases the taste stability and creates lighter beer colours. Thanks to the use of an energy recovery system, the brewer not only achieves economic but also technological advantages.

At a glance

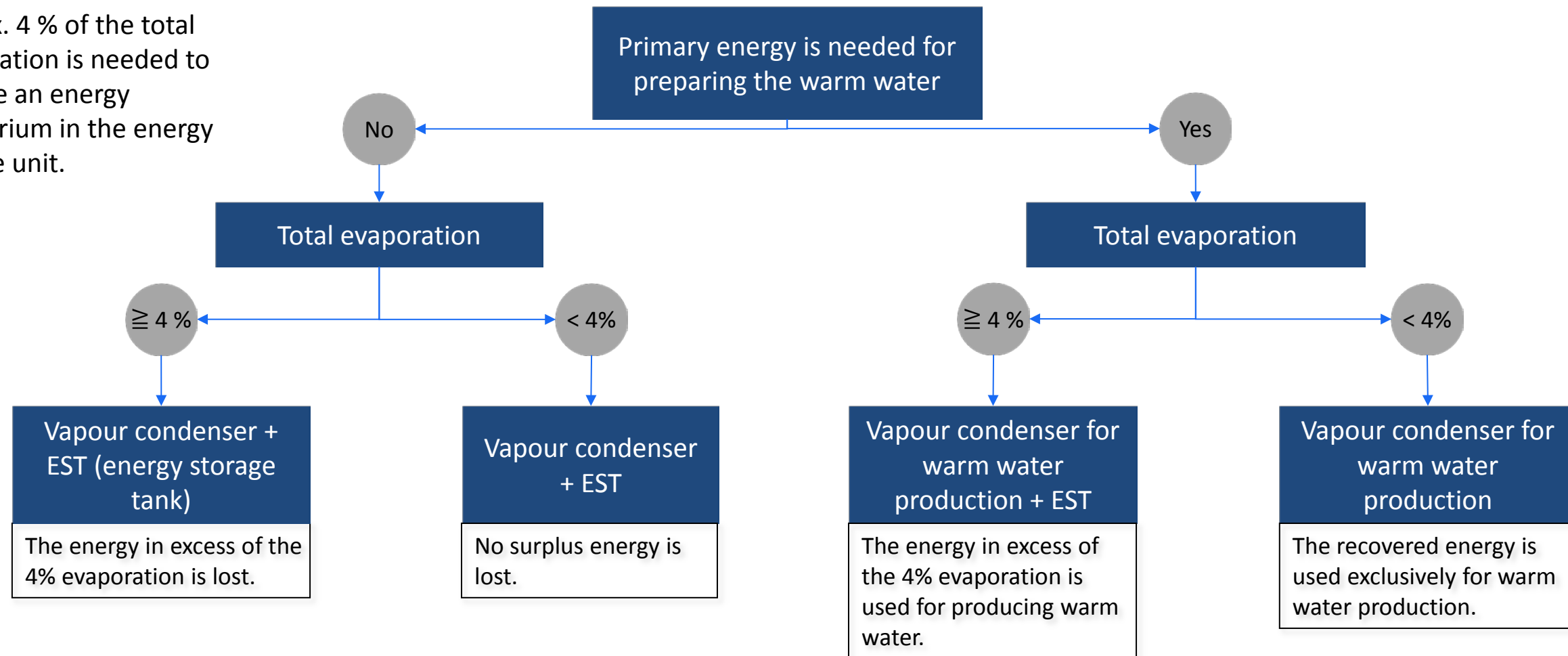
- Energy recovery for warm water generation or for lauter wort heating
- Thanks to the high degree of utilisation, an energy recovery of more than 90 percent of primary used energy is possible





What variants are possible for energy recovery?

Approx. 4 % of the total evaporation is needed to achieve an energy equilibrium in the energy storage unit.



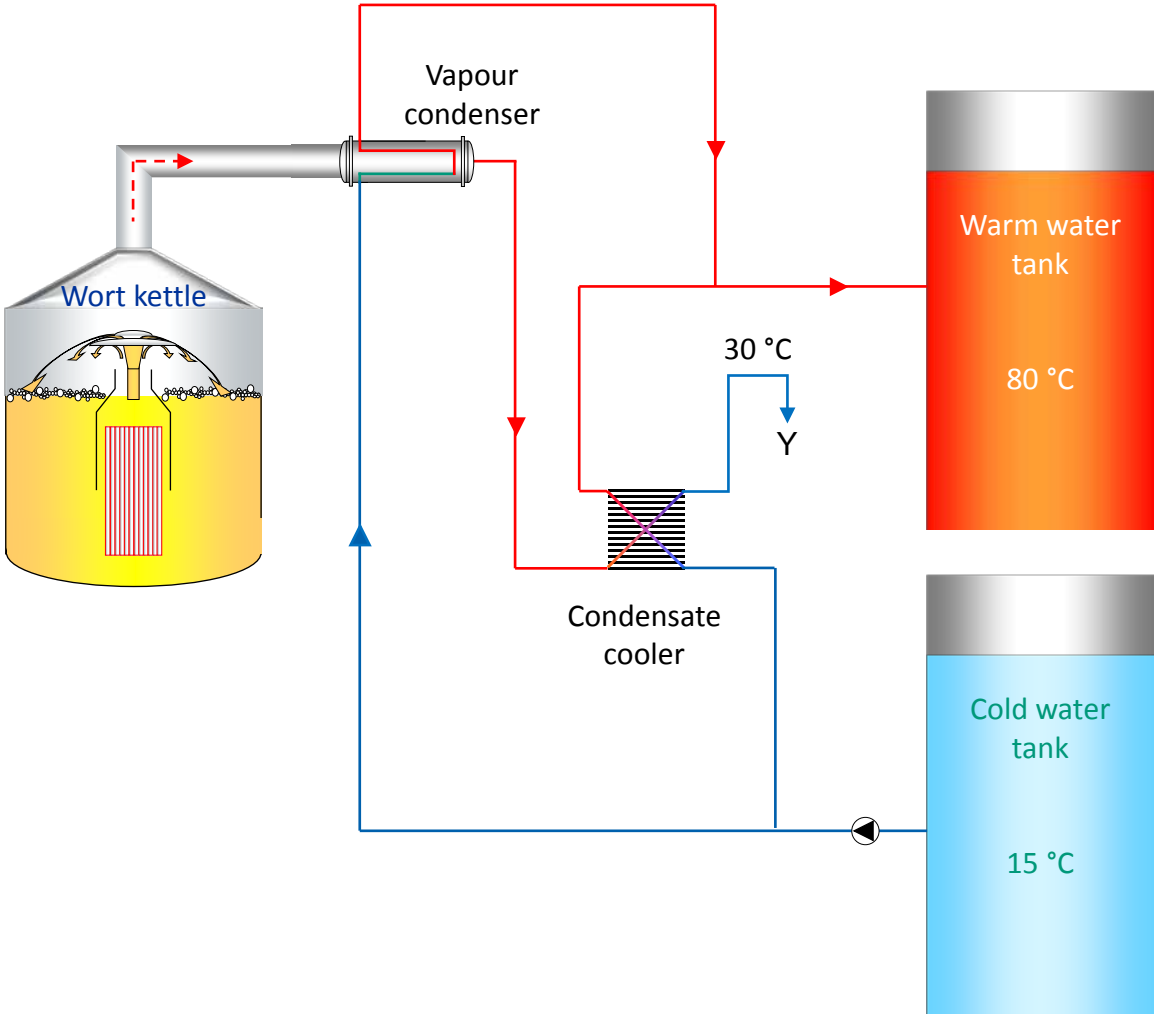
Remark:

If vapour emissions need to be prevented because of statutory regulations, warm water production should always be selected so that the vapours from the surplus energy can also be condensed.



Options for the individually suitable energy recovery

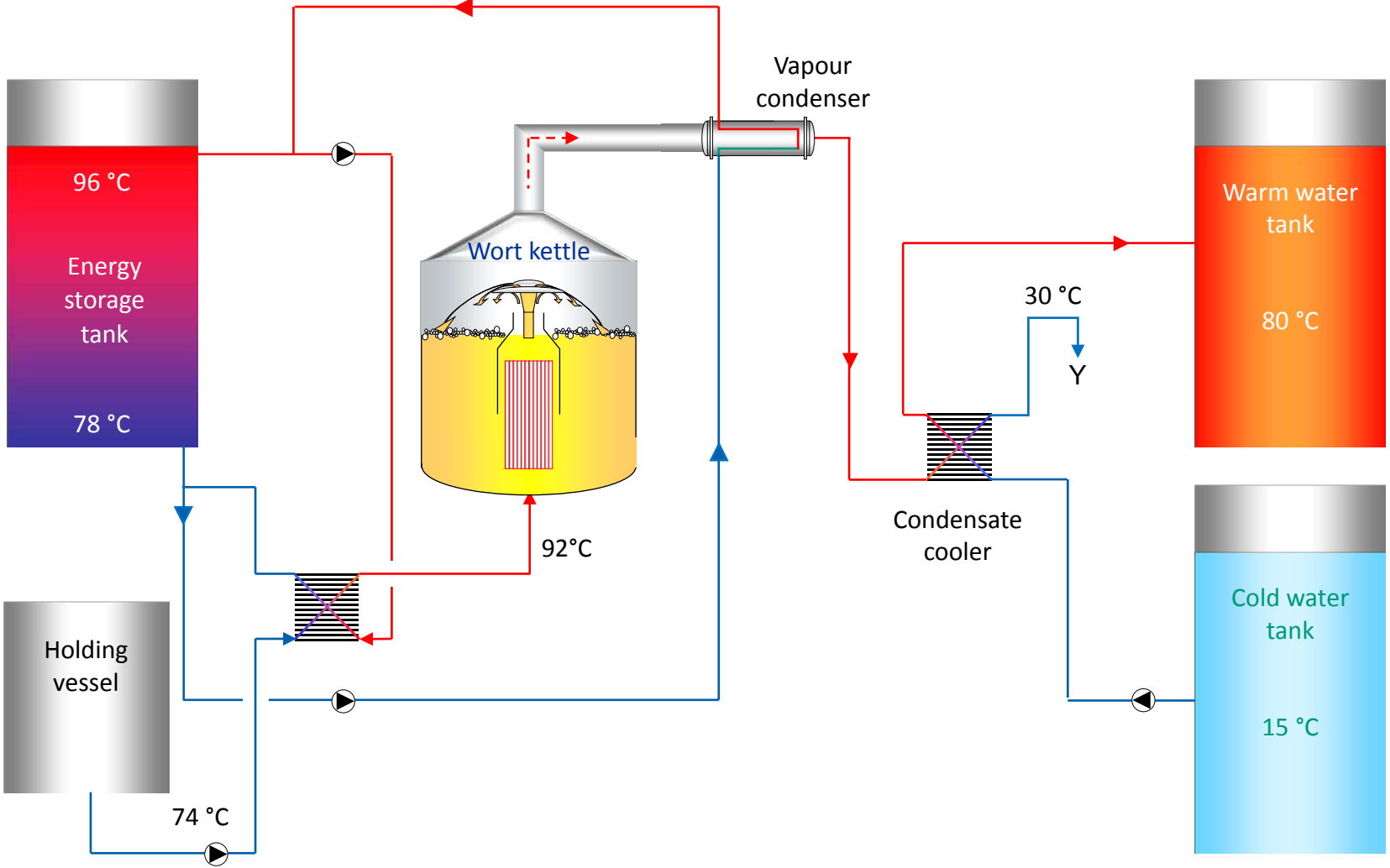
Vapour condenser for warm water production





Options for the individually suitable energy recovery

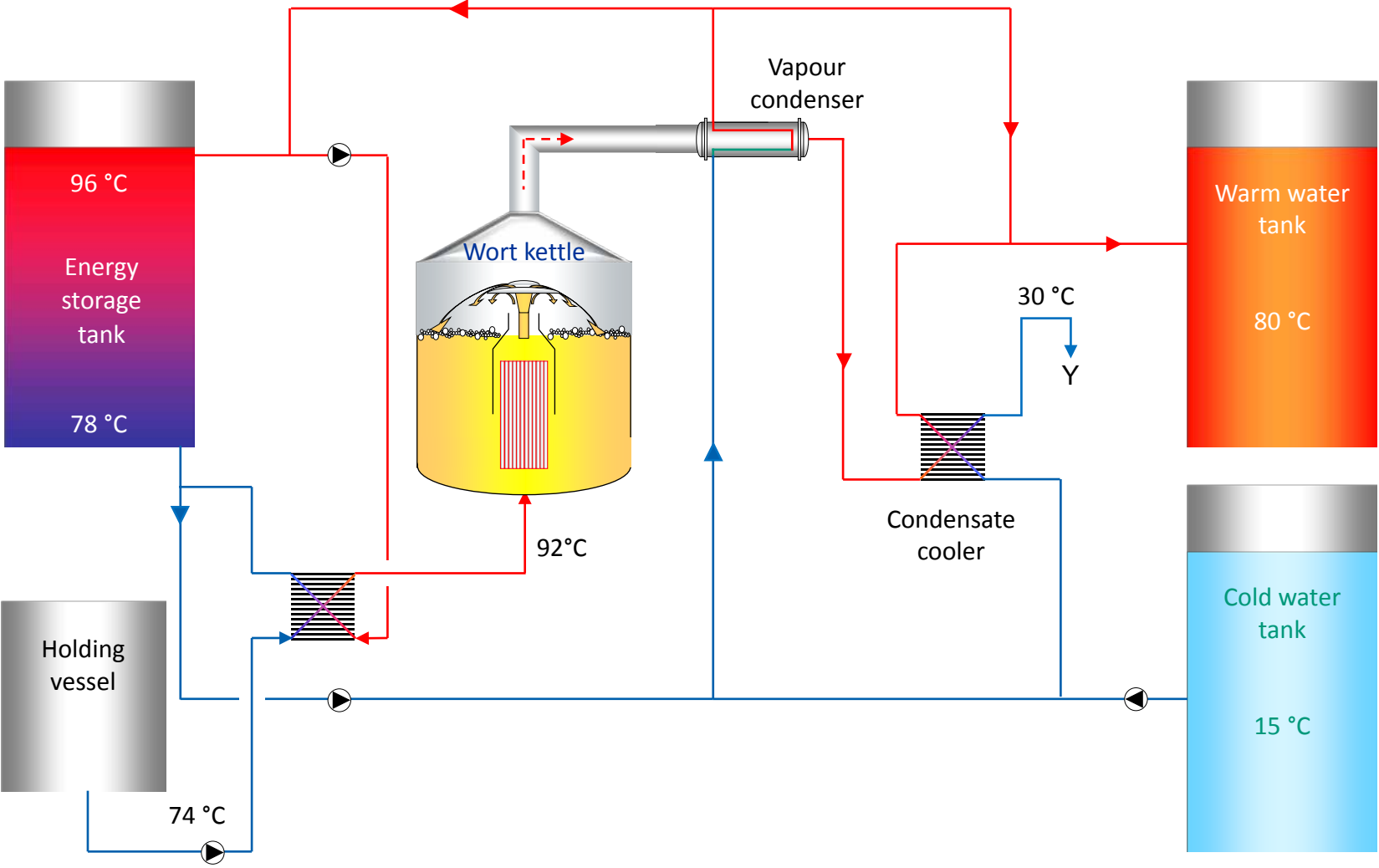
Energy storage system for lauter wort heating





Options for the individually suitable energy recovery

Energy storage system for lauter wort heating and warm water production





What can be achieved with lauter wort heating?

- Heating the lauter wort allows for a reduction of the heating process in the wort kettle
- If eleven brews per day or more are produced, the lauter wort needs to be heated.
- The low temperature difference at the lauter wort heater reduces the thermal load of the wort and thus improves the quality of the brewed beers.





The facts at a glance

The use of an energy storage system offers significant advantages for the brewing process regarding the energy consumption and productivity:

- With a total evaporation of 4 percent, the energy storage system is in balance and savings of primary energy of close to 30 percent can be achieved.
- A high brew rate can be achieved with lauter wort heating.

	Standard	Energy storage unit
Evaporation	4 %	4 %
Kettle full hl	520	520
Temp., start of heating °C	75	92*
Temp., start of boiling °C	99	99
Heating energy KJ	5,291,520	1,543,360
Boiling energy KJ	4,516,000	4,516,000
Oil consumption l	414	256
Oil saving l/brew		126**

* Downstream of lauter wort heater

**At an energy reservoir efficiency of approx. 90 %

	Standard	Energy storage unit
Temp., start of heating °C	75	92*
Minutes of heating duration	48	14**
Minutes of boiling time	60	60
Minutes of spindle duration	5	5
Minutes of casting duration	15	15
Minutes of rinsing duration	5	5
Total action time	133	99
Brews per day	10.8	14.5

* Downstream of lauter wort heater

** Start of heating at lauter end



Benefits at a glance

Improved energy balance

The saving of primary energy results in a reduced CO₂ emission at the high-energy brewing process.

Targeted adjustment

All components of the plant are adapted to the Stromboli wort boiler, however they can just as well be used for existing boilers. This way, also breweries which have been used already for a very long time, can save energy.

Gentle wort treatment

The reduced heating medium temperature at the lauter wort heating reduces the thermal stress of the wort and contributes to improved wort quality.

Reduced operating costs

Energy saving measures also stand out for their cost effects. With the energy recovery system you will keep your energy costs under control.

Emission protection

The condensation of the vapours prevents the emission of odours and is therefore absolutely necessary when residential areas are in the vicinity of breweries.



Digitalisation



Process
technology



Bottling and
packaging equipment



Intralogistics



Lifecycle
Service

We do more.

 **KRONES**