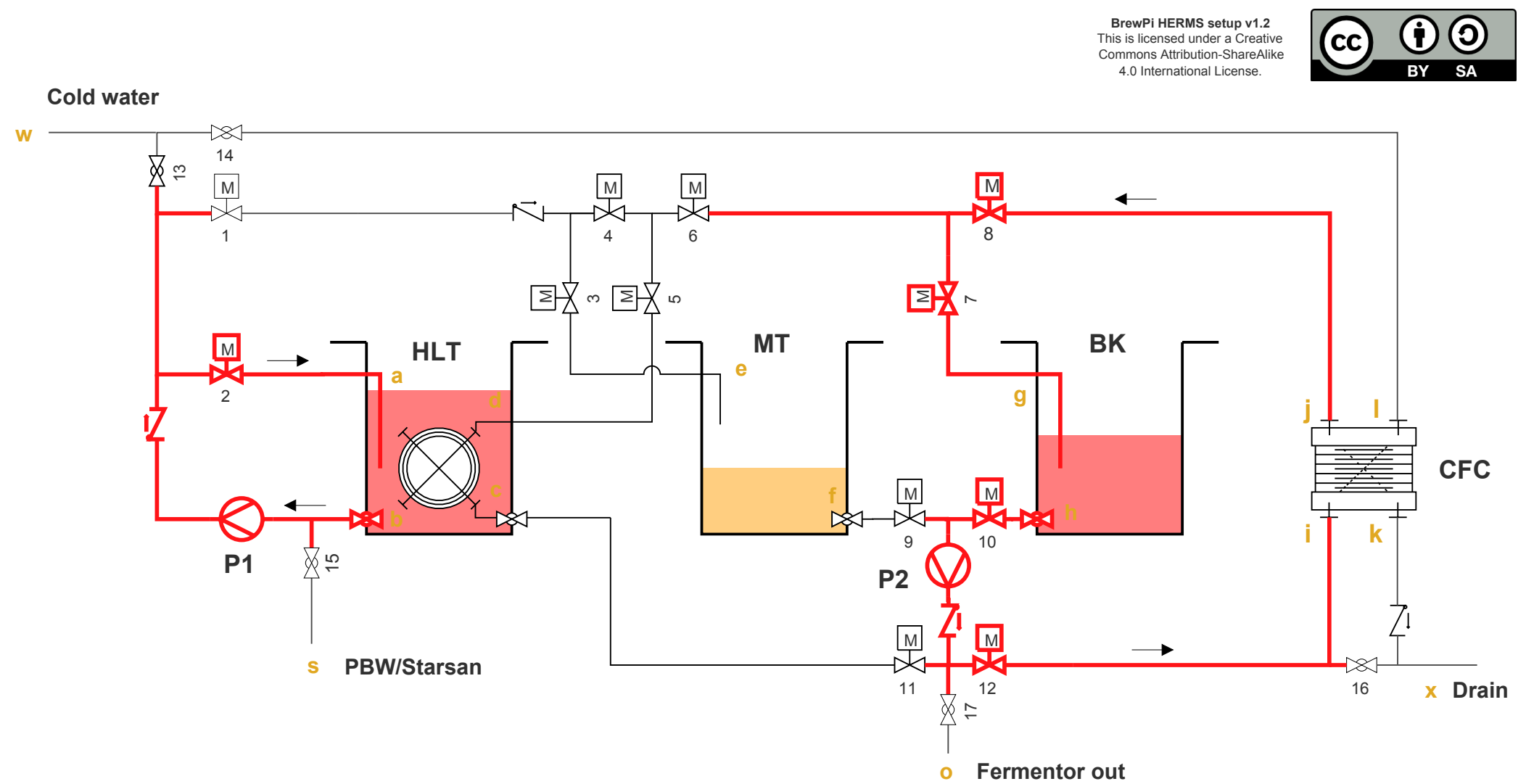


Fill BK with cold water

The BK is filled with water after the HLT is full. This water is used for mash in. By using water from the BK, we have can measure the mash volume in the BK before mashing and the HLT stays full.

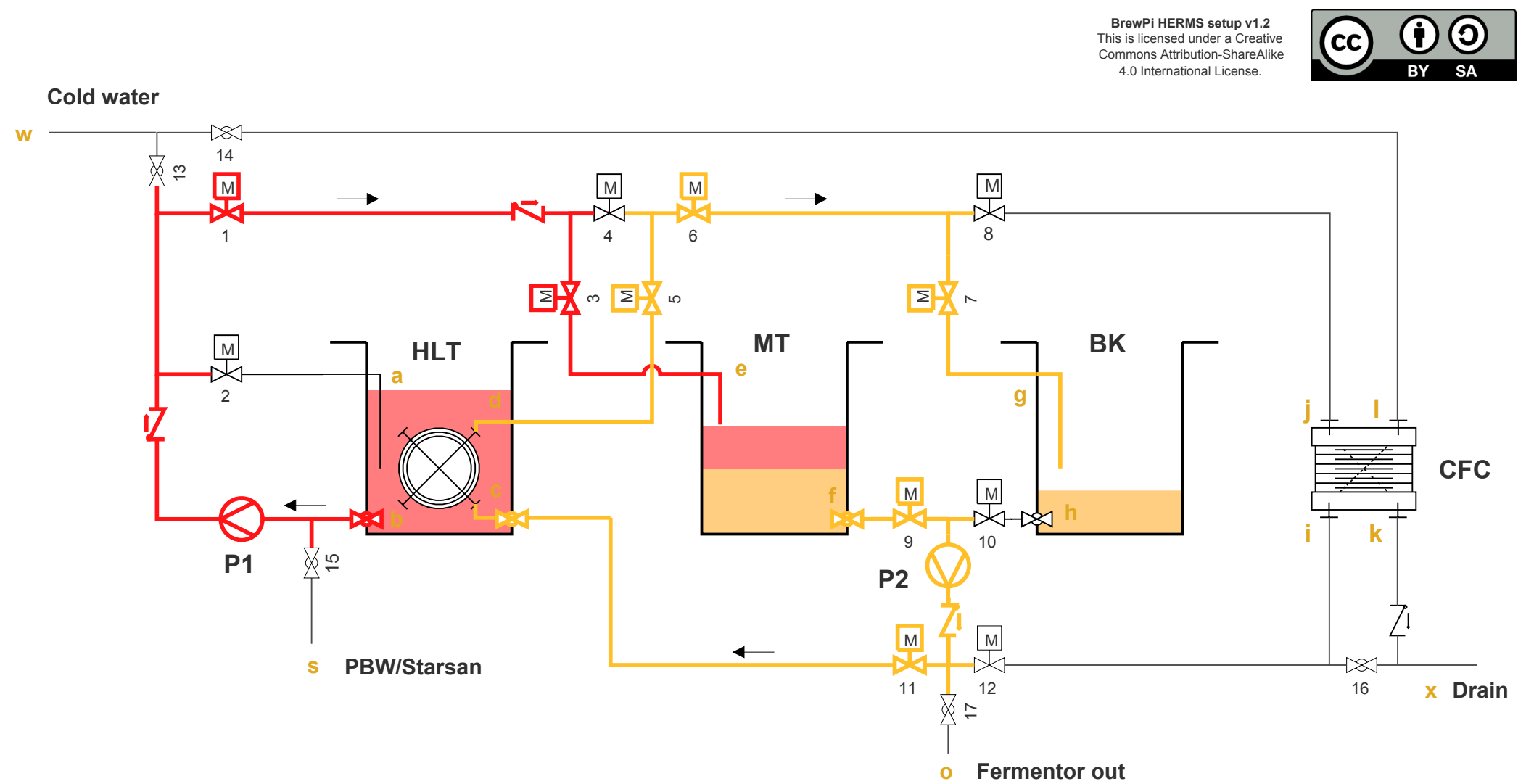
System opens 1, 4, 6 and 7 to fill BK until full. Manually close valve 13 when done.



Heat HLT and BK
The HLT is heated to the first mash temperature, the BK is warmer to account for temperature losses later when grain is added. The BK and HLT are circulated while heating. In the mean time, grain is added to the MT.

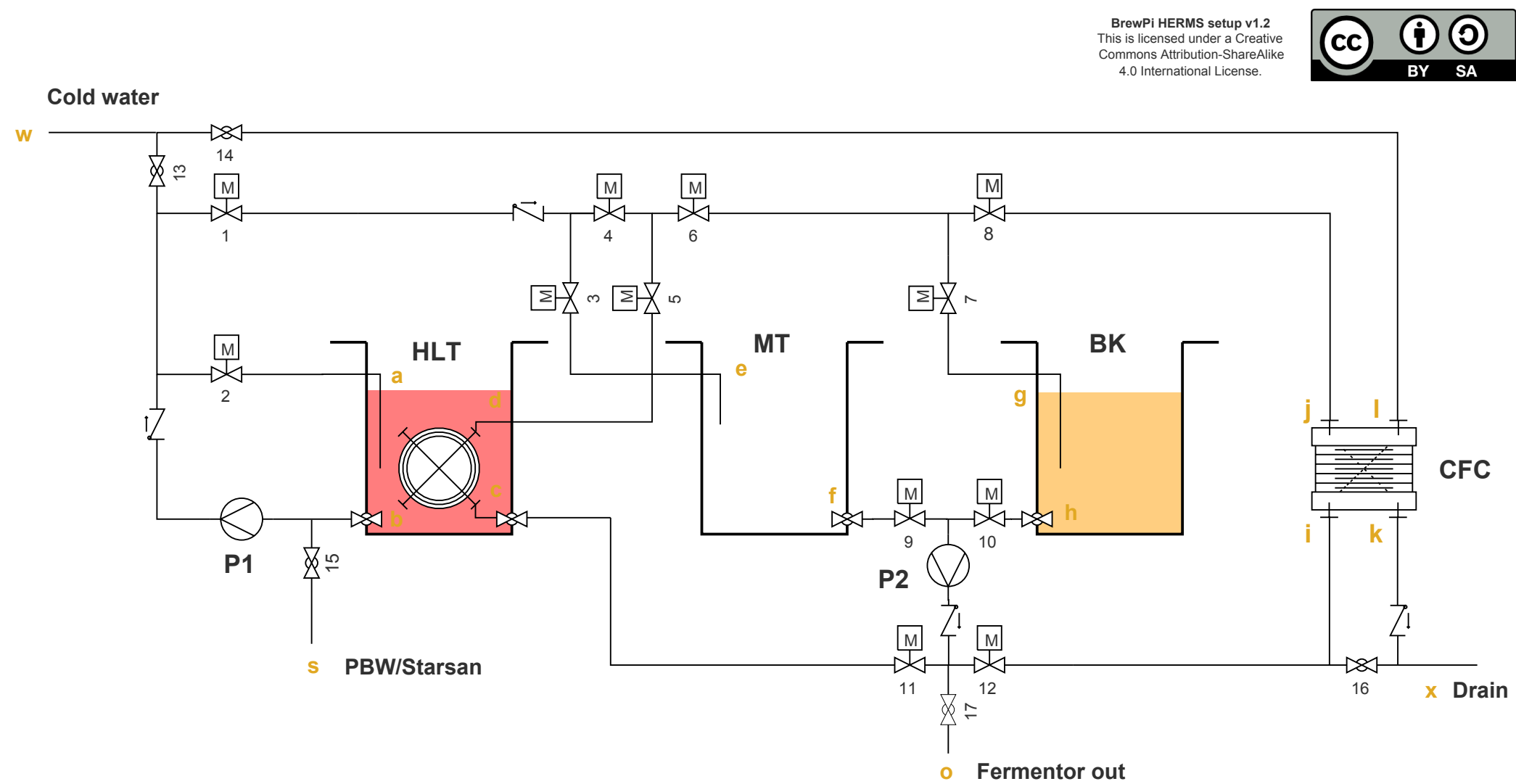
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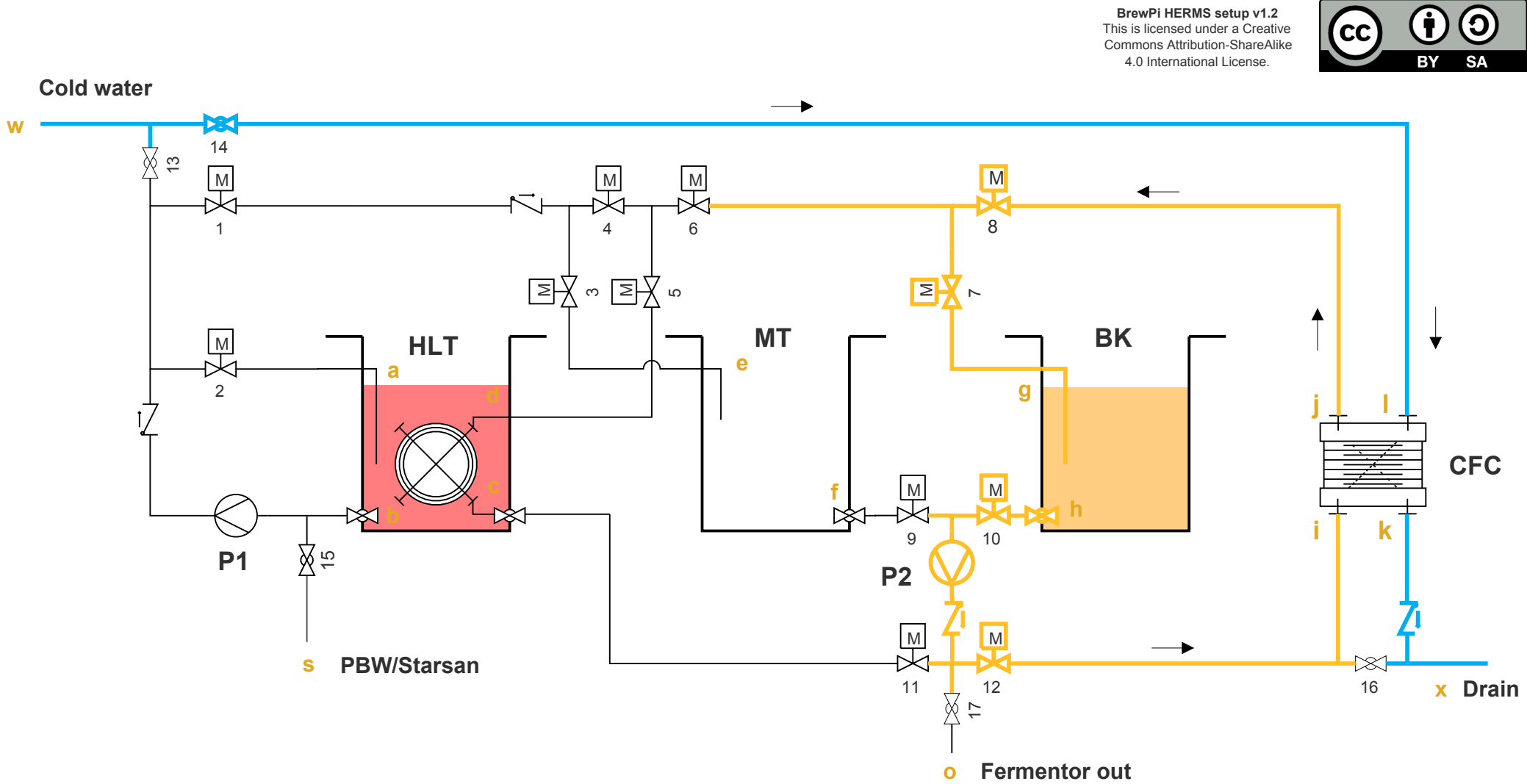
Sparge
 Pump 2 pumps wort to the boil kettle via the coil. Hot sparge water from the HLT is pumped on top of the grains in the MT by pump 1.

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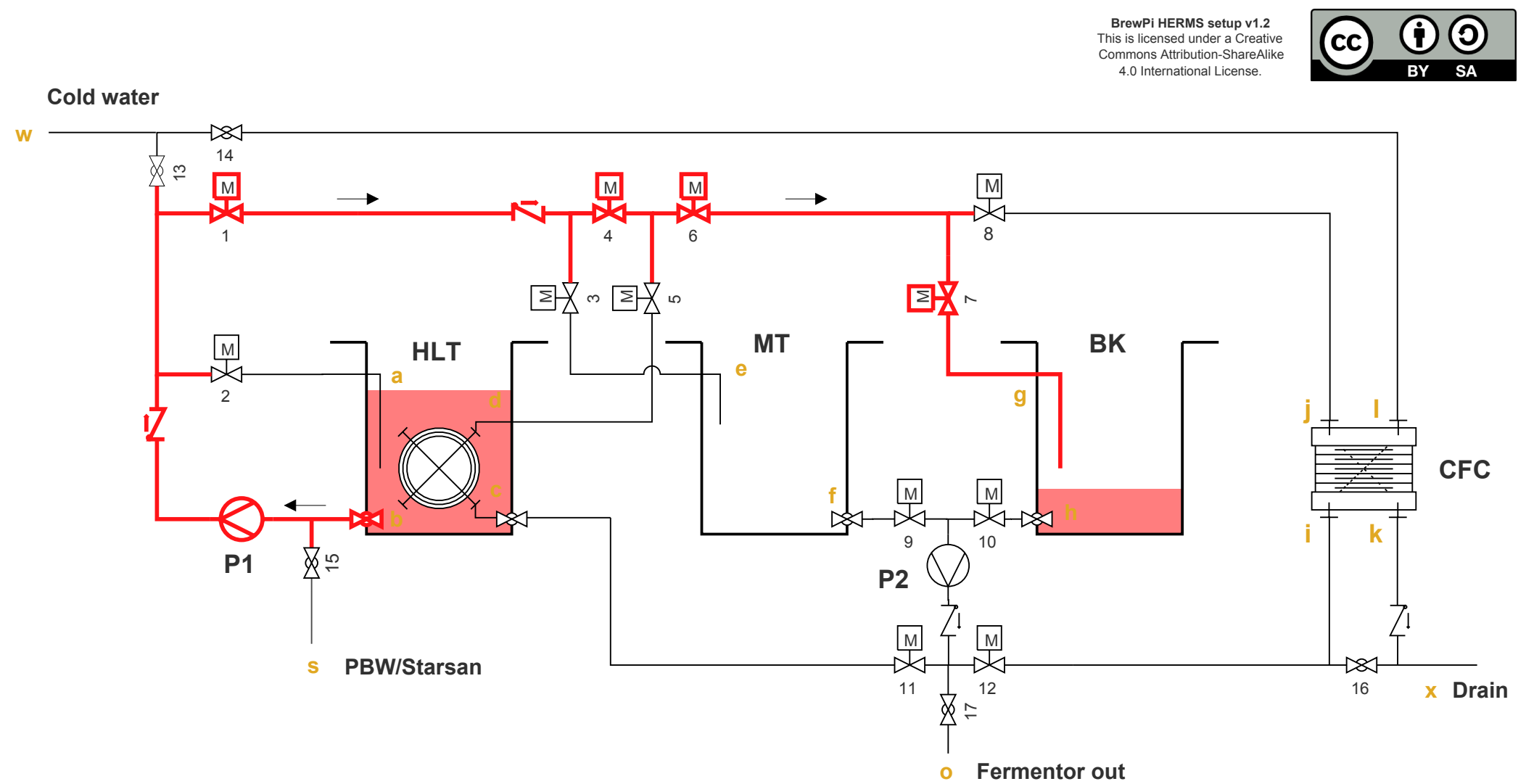


Boiling

No flows active during this step, but added it for clarity: wort is boiled! hops are added!

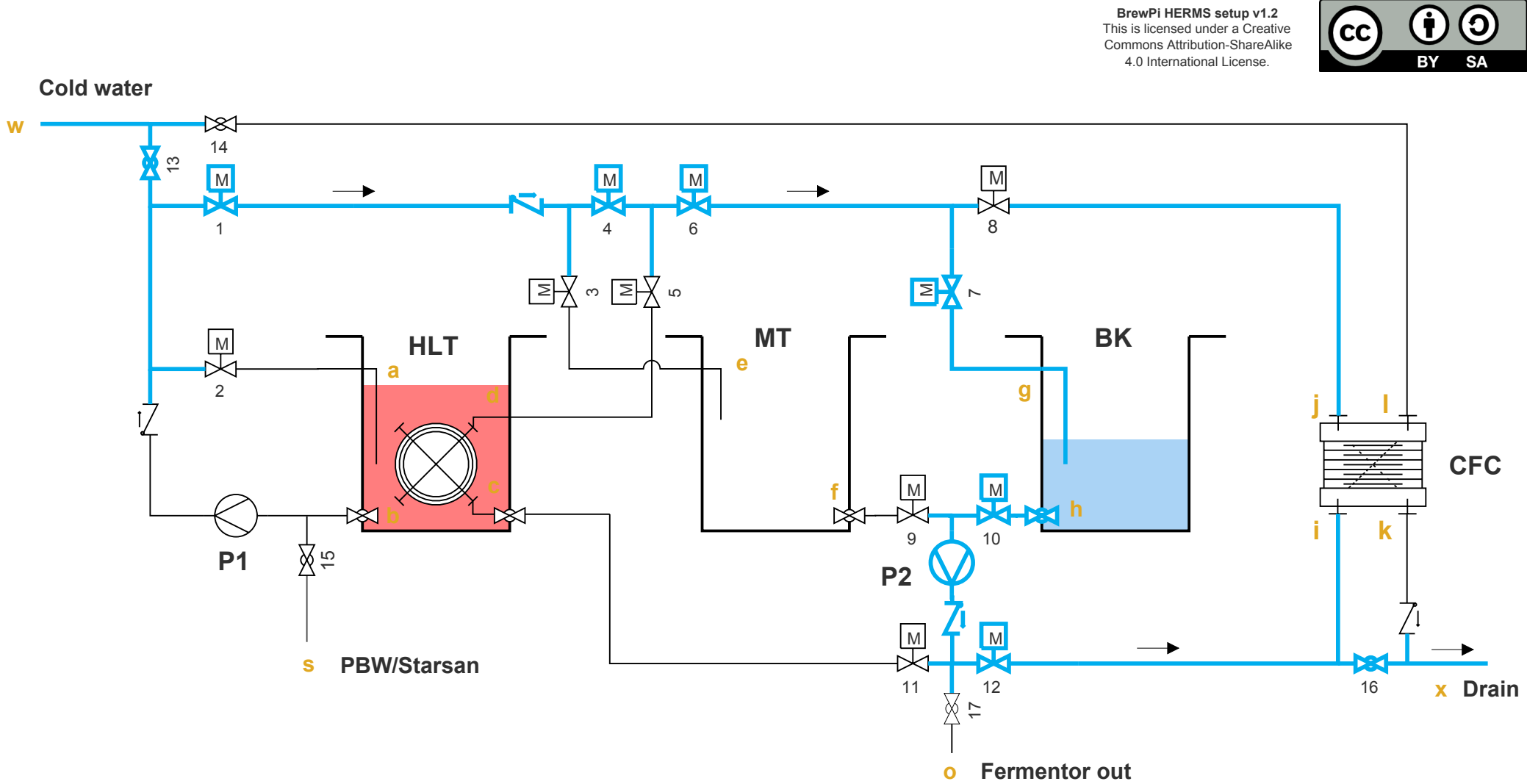


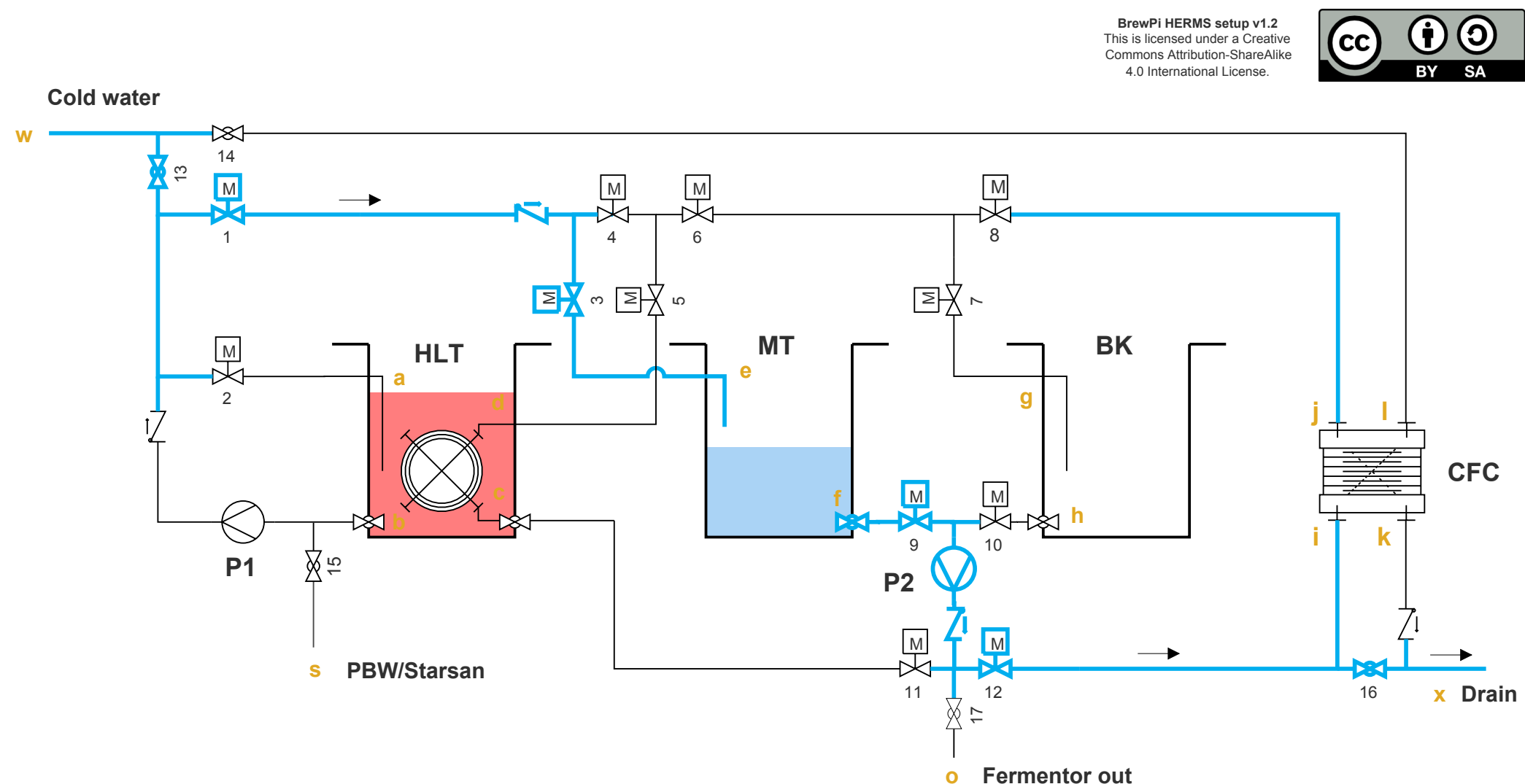
Cooling
After the boil the wort is circulated through the counter flow chiller until pitch temperature is reached.
Valve 14 is manually opened to flow cold water through the CFC, but only after a few minutes of circulating boiling wort for sanitizing.



Extra sanitized water

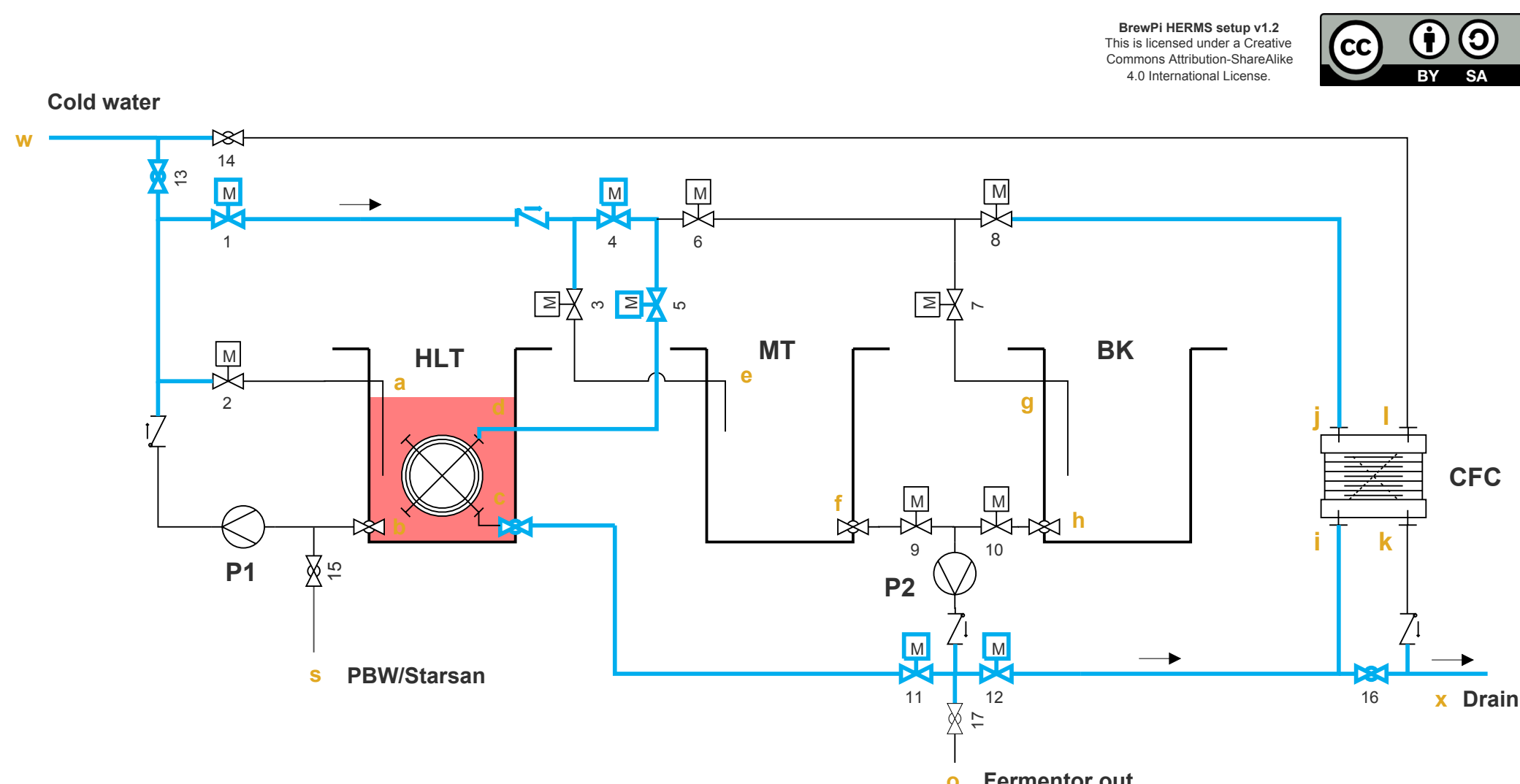
If the volume in the fermentor is too low (due to not estimating evaporation correctly), it can be topped up with water from the HLT. The water has been heated and is sanitary. To use this, it has to be pumped to the BK first. Then the steps *cooling* and *to fermentor* are repeated.

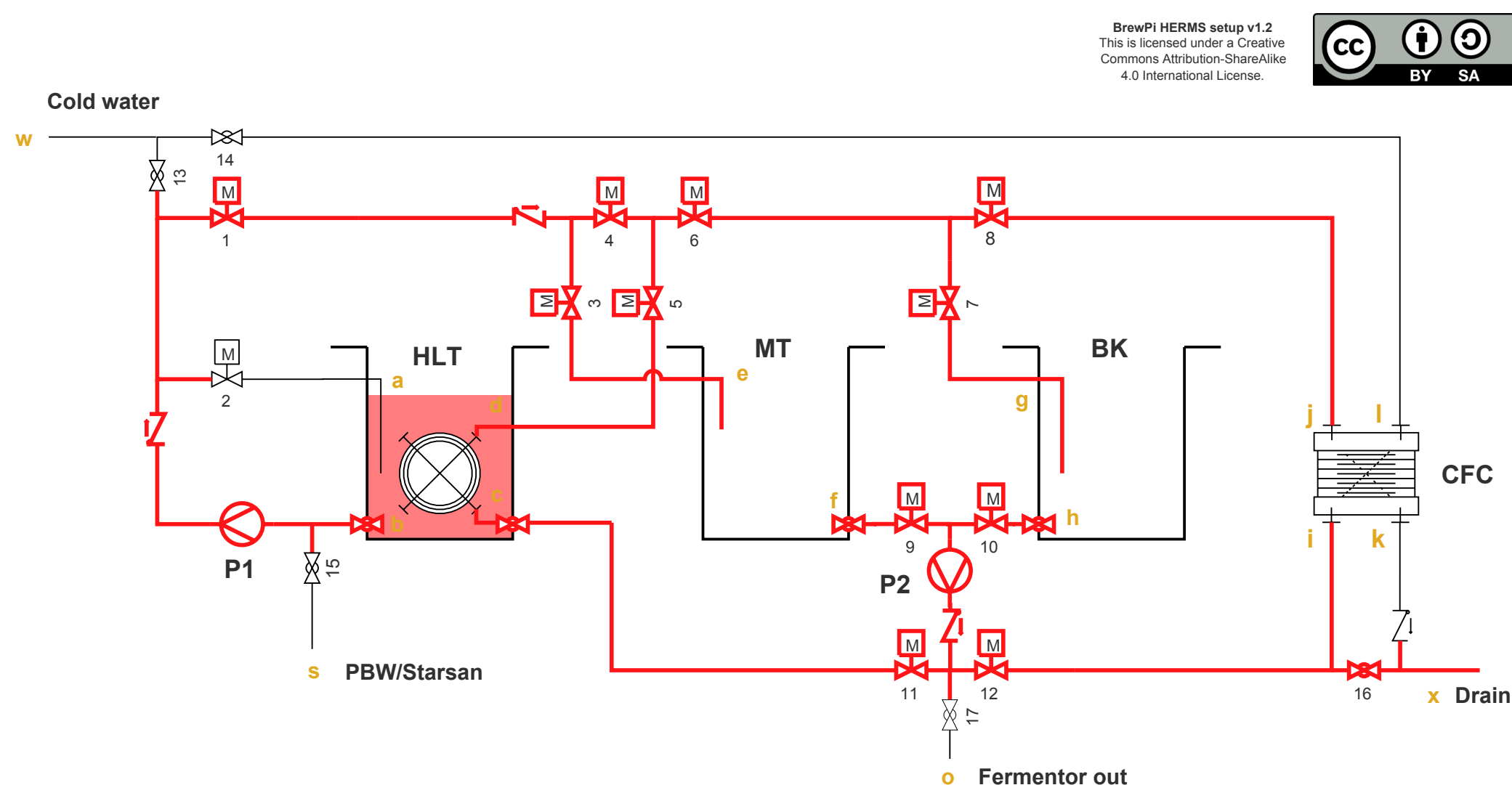




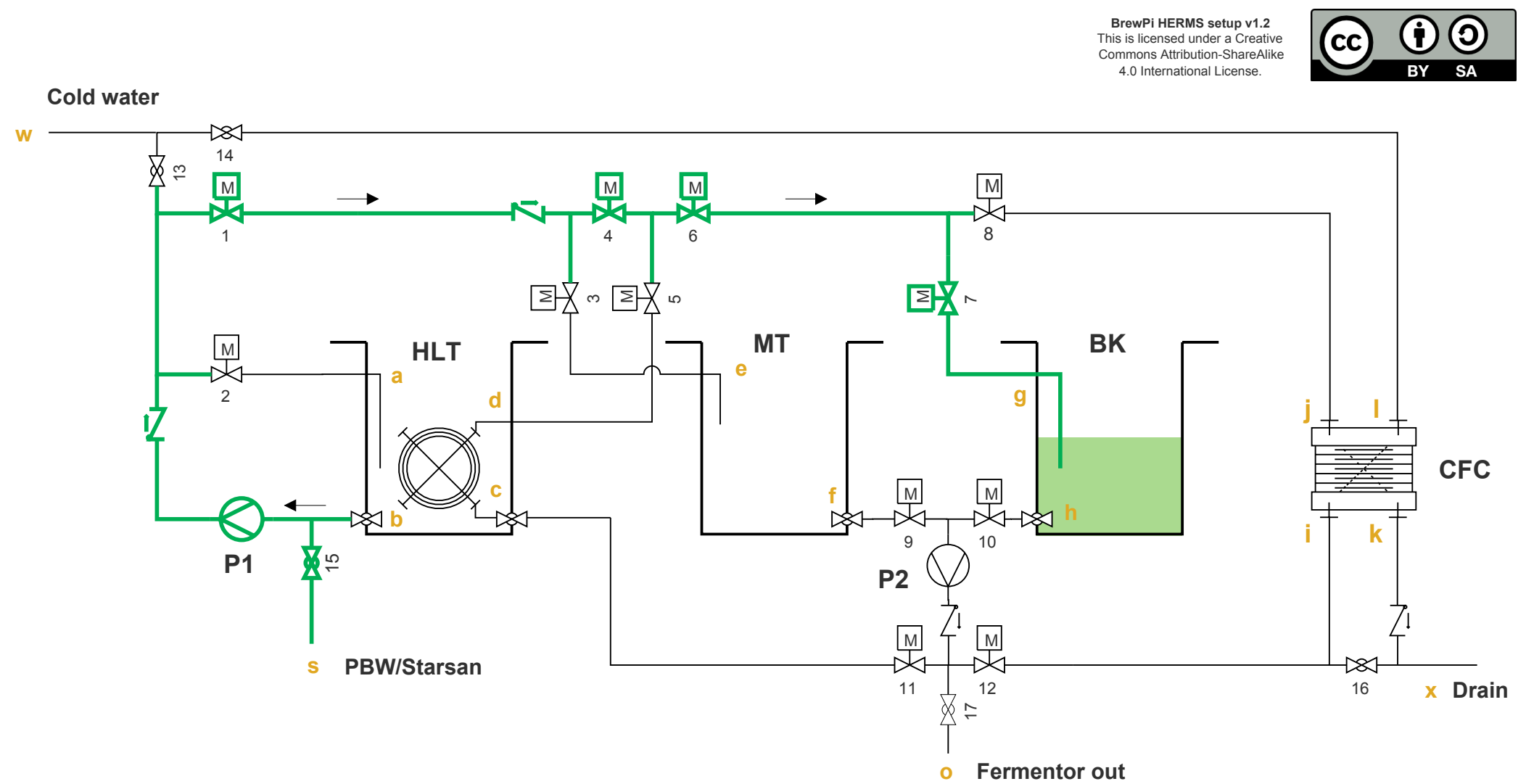
Clean in place 2:
Flush mash tun with cold water, by filling it with pump 1 and emptying it with pump 2.

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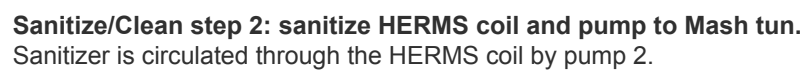


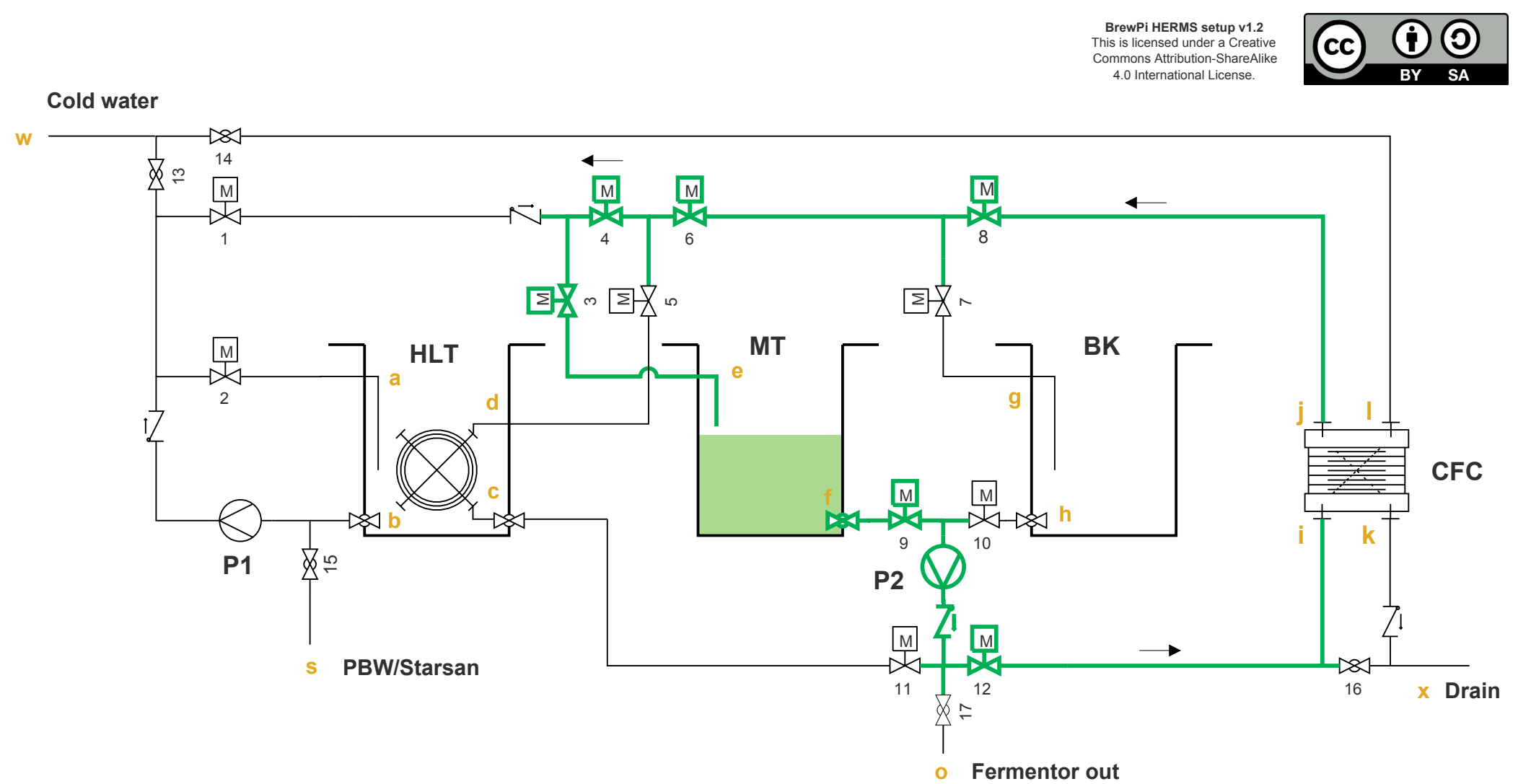
Clean in place: hot water
Clean in place step 1-4 can be repeated with hot water from the HLT.



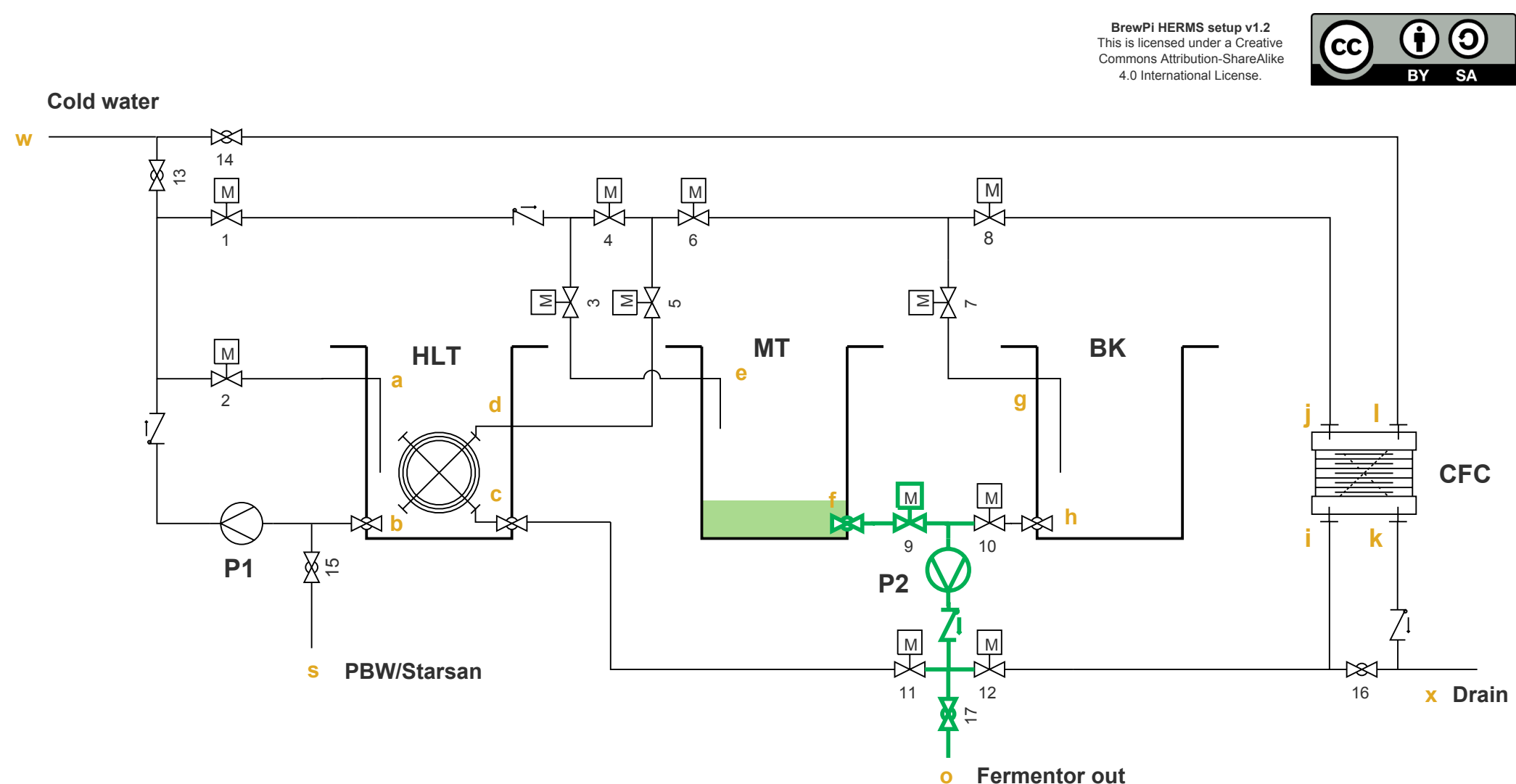
Sanitize/Clean step 1: fill BK with sanitizer
Sanitizer can be pumped to the boil kettle via pump 1 and valve 15 for later circulation through the system.

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Sanitize/Clean step 3: Circulate through CFC
Sanitizer is circulated through the HERMS coil by pump 2.



Sanitize/Clean step 4: sanitizer out
Pump sanitizer out via fermentor out. Catch it for reuse or dump it.

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