

Schooling on Brewplant BREW STAR and LAUTER STAR

(English version)



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BREW STAR

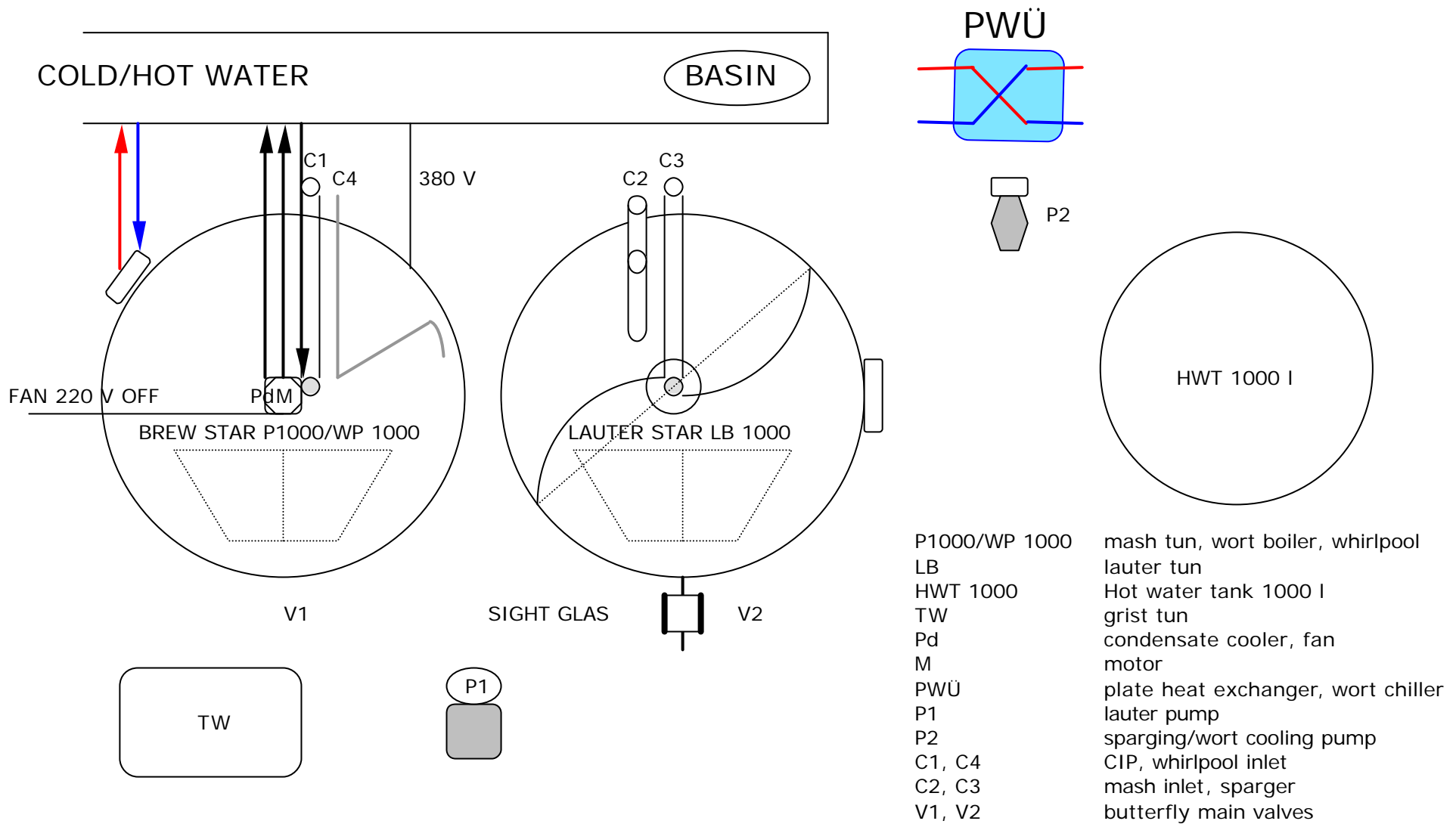
LAUTER STAR

March 2007

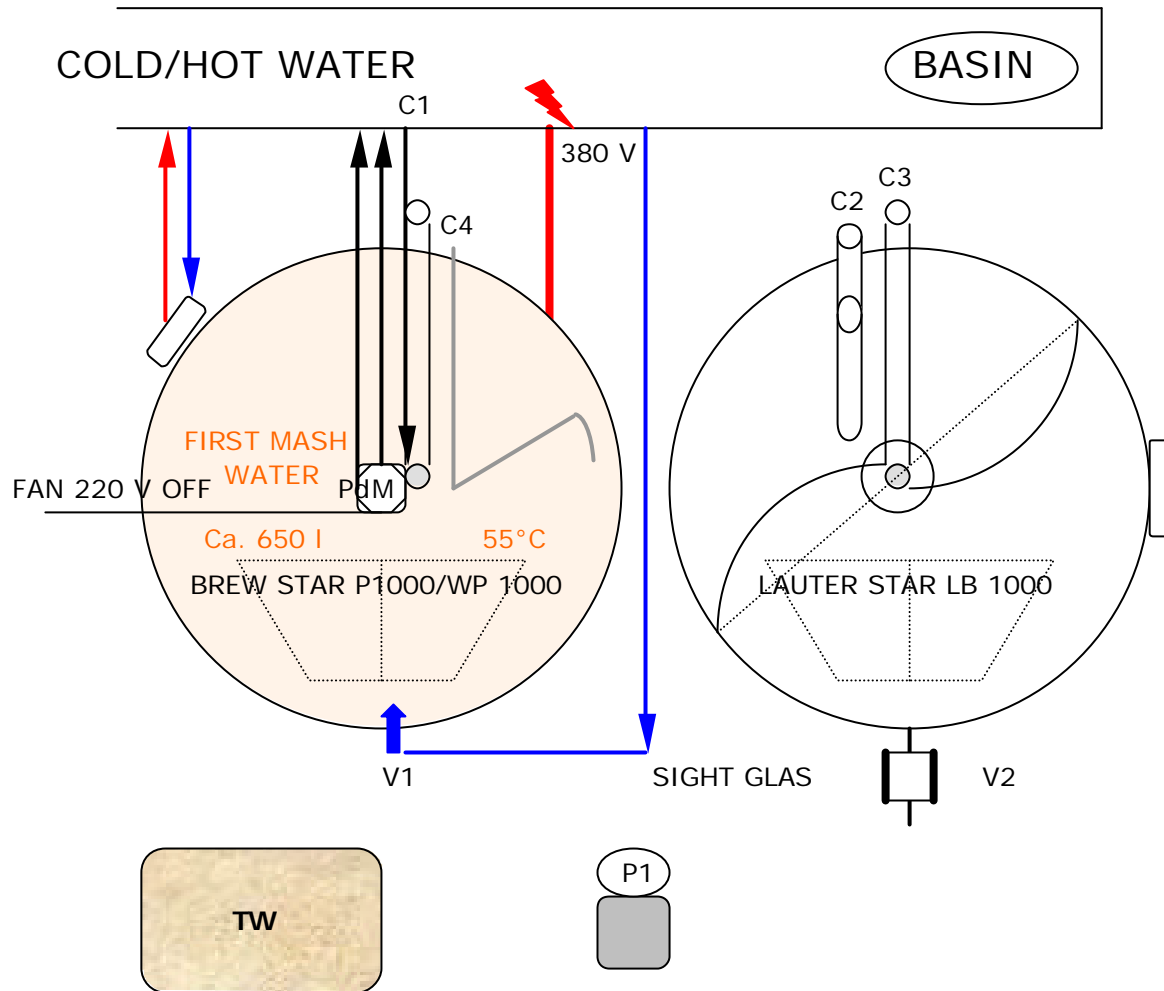
Prepare in the evening on the day before each brew:

- ⇒ clean all equipment (wear always gloves)
- ⇒ check if water and electricity are available
- ⇒ connect a water counter to C1
- ⇒ boil 10 hl water (1000 l) in BREW STAR P1000E
- ⇒ grind your malt
- ⇒ print out your brewing protocol (form)
- ⇒ check and prepare your measuring instruments (e.g. refractometer)

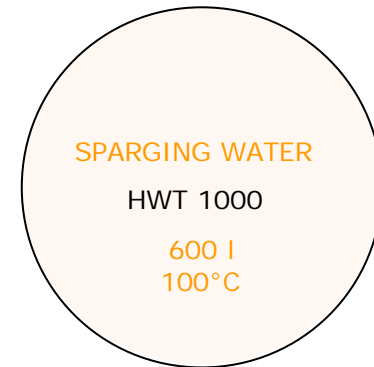
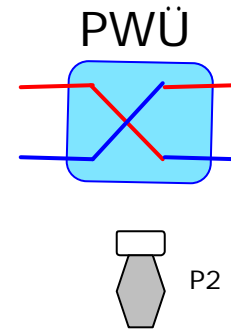
Placing the Brewplant into the Brewhouse room:



STEP 1 – FIRST MASH WATER:

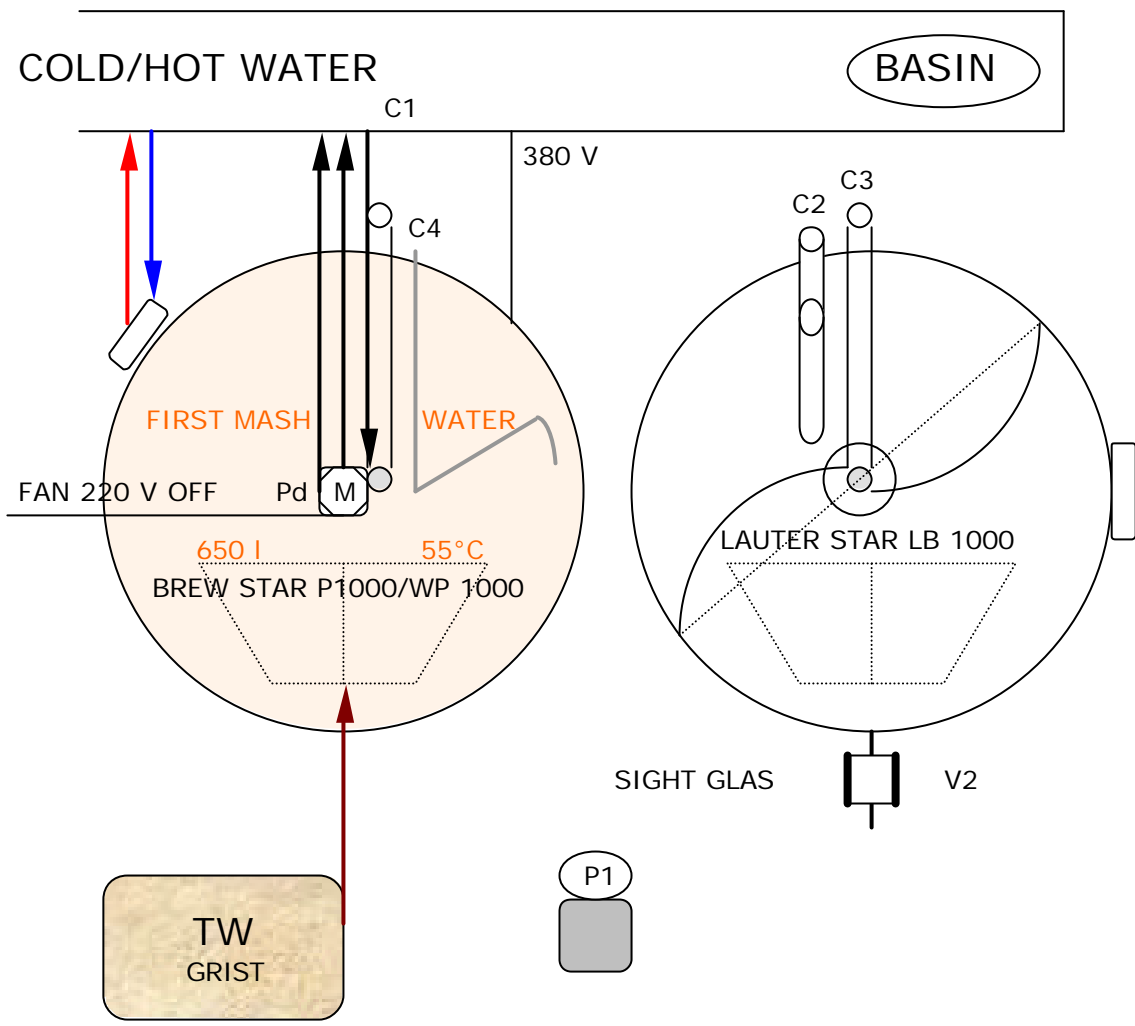


• FIRST MASH WATER	
1	Heat up 1000 l water to 100°C
2	FILL IN 400 l BOILING FIRST MASH WATER INTO P1000 (V1)
3	COOL DOWN THE FIRST MASH WATER (IN BREW STAR P1000E) TO 55°C

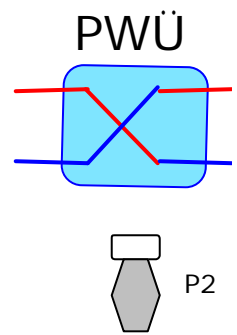


- P1000/WP 1000 mash tun, wort boiler, whirlpool
- LB lauter tun
- HWT 1000 Hot water tank 1000 l
- TW grist tun
- Pd condensate cooler, fan
- M motor
- PWÜ plate heat exchanger, wort chiller
- P1 lauter pump
- P2 sparging/wort cooling pump
- C1, C4 CIP, whirlpool inlet
- C2, C3 mash inlet, sparger
- V1, V2 butterfly main valves

STEP 2 – MASHING IN, PROTEIN REST:

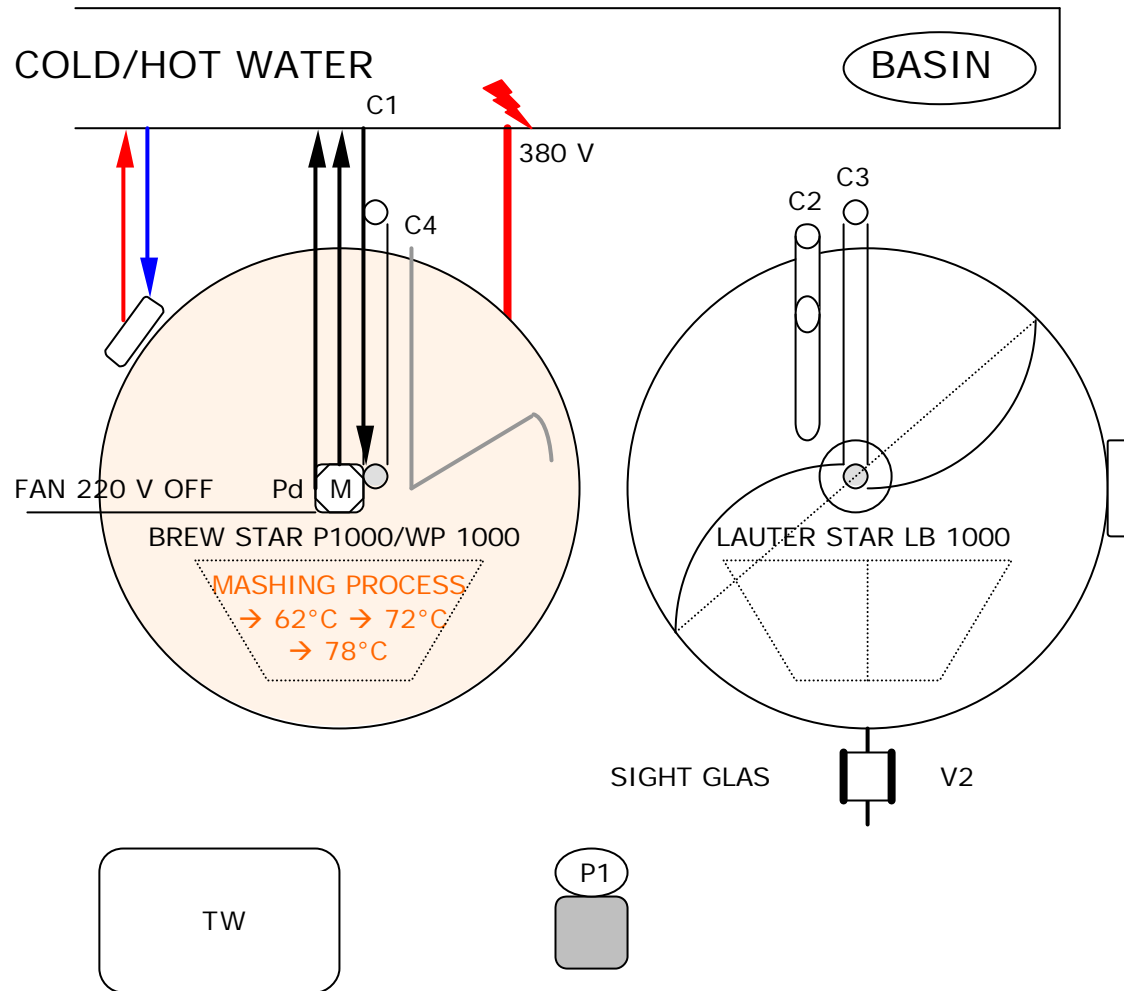


	<ul style="list-style-type: none"> • MASHING IN & • PROTEIN REST
1	OPEN THE LID OF P1000 AND MASH IN THE GRINDED MALT INTO THE 55°C HOT WATER
2	CLOSE THE LID AND SWITCH ON THE STIRRER FOR 5 MINUTES
3	THEN STOP THE STIRRER AND REST 10 MINUTES

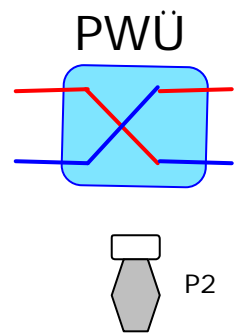


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- C2, C3 mash inlet, sparger
- V1, V2 butterfly main valves

STEP 3 – MASHING PROCESS:

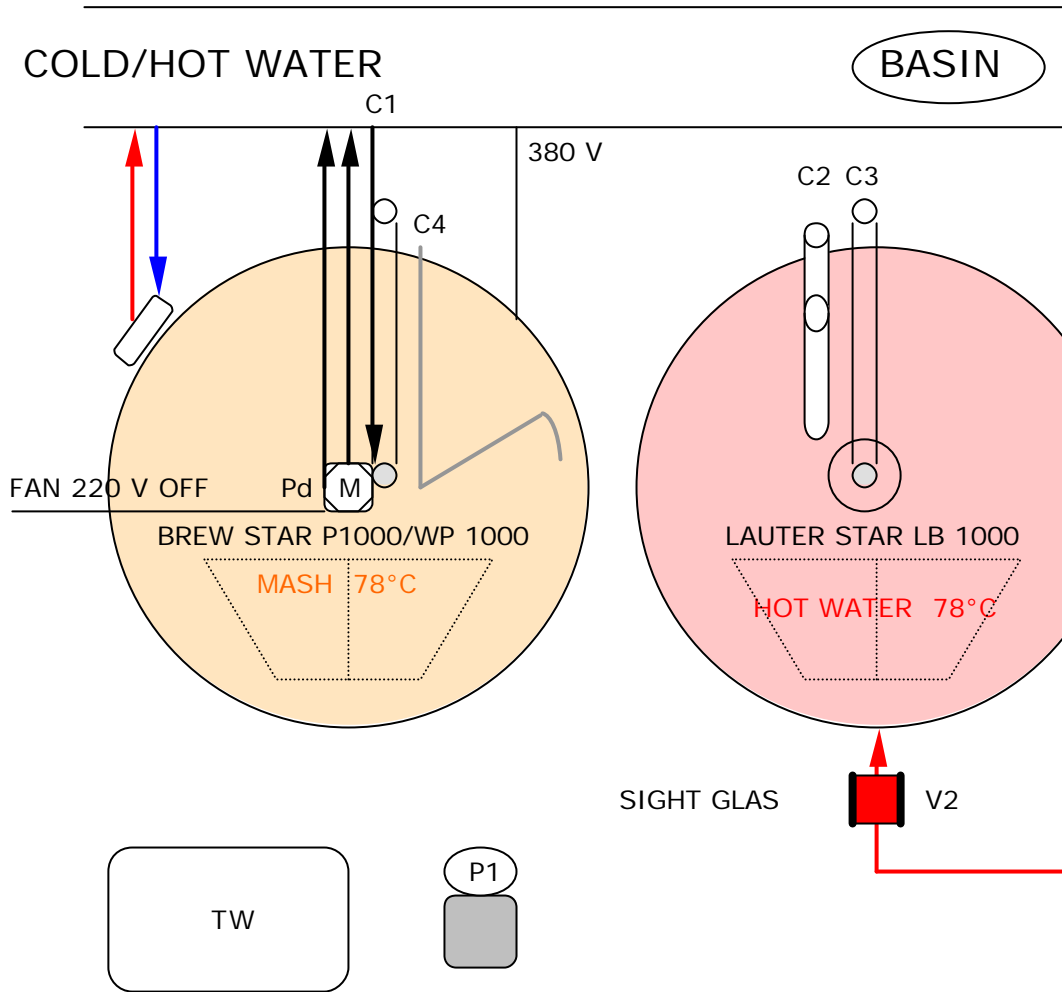


• STARTING THE MASHING PROCESS	
1	PRESS P1, P2, or P3 AND START THE AUTOMATIC MASHING PROCESS (OR P4 MANUAL STEERING)
2	MAKE THE IODINE TEST AT THE END OF THE REST ON 72°C
3	THE MASHING PROCESS ENDS WITH THE ALARM SOUND AT 78°C THE STEERING STOPS AUTOMATICALLY

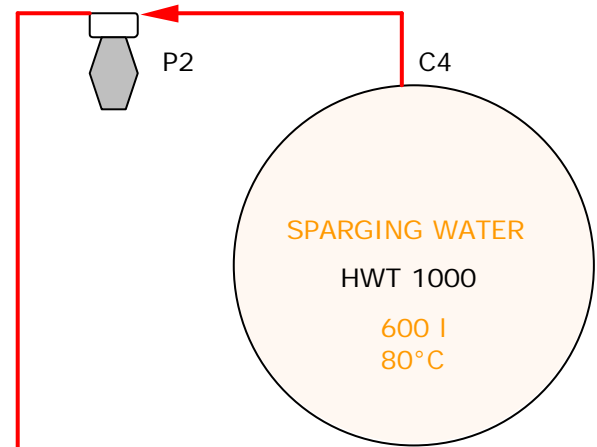
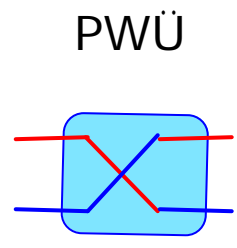


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- V1, V2 butterfly main valves

STEP 4 – PREPARE LAUTER STAR:

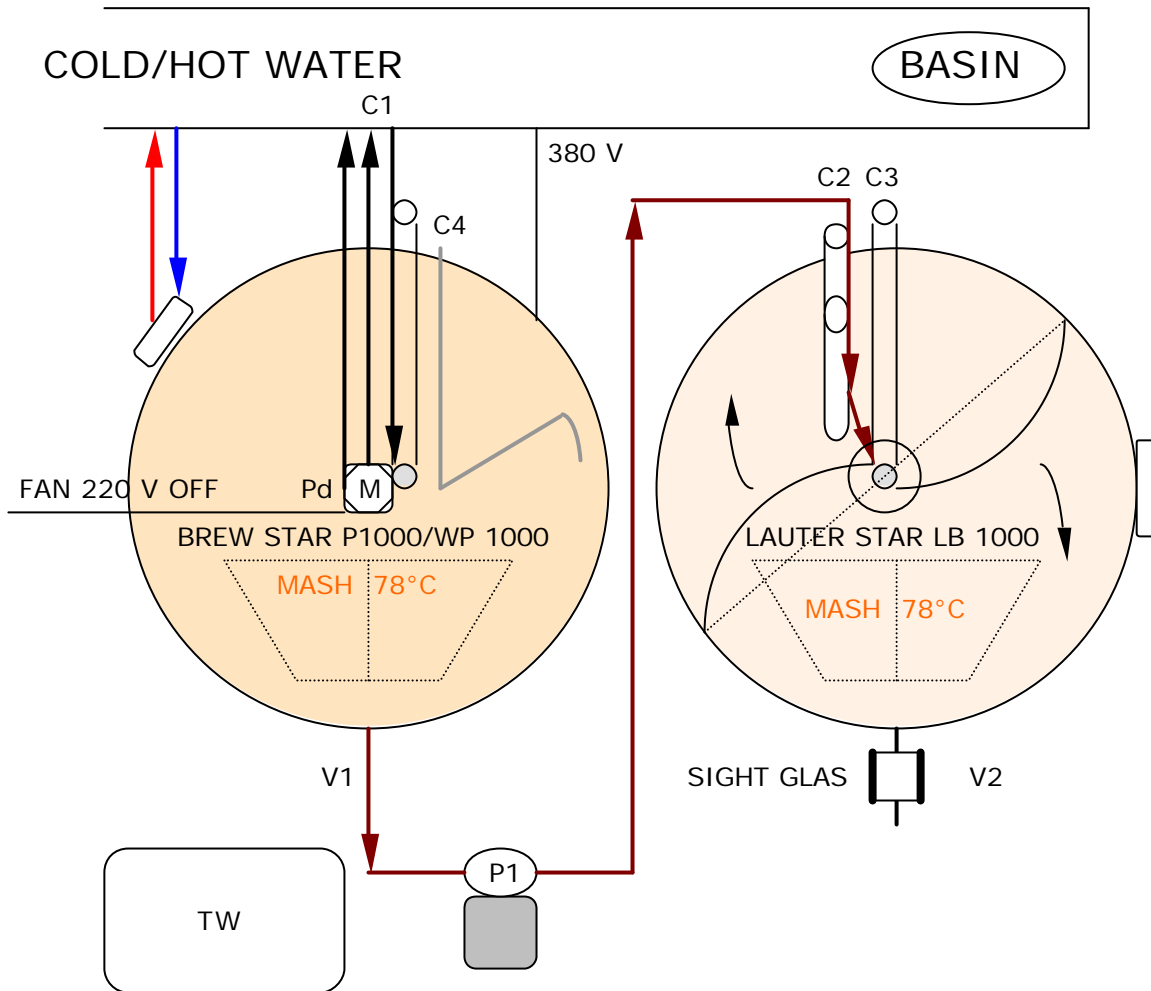


- COVER FALSE BOTTOM OF LAUTER STAR LB1000
- | | |
|---|--|
| 1 | PUMP 80°C HOT WATER INTO THE BOTTOM OF LAUTER STAR LB 1000 (C4 → V2) |
| 2 | REMOVE THE AIR UNDER THE FILTER BOTTOM AND WARM UP LAUTER STAR LB1000 (78°C HOT WATER REMAINS THERE) |

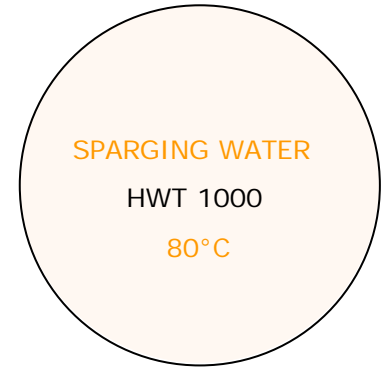
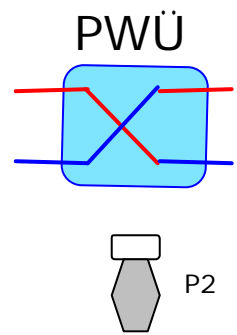


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STEP 5 – MASH OUT BREW STAR P1000:

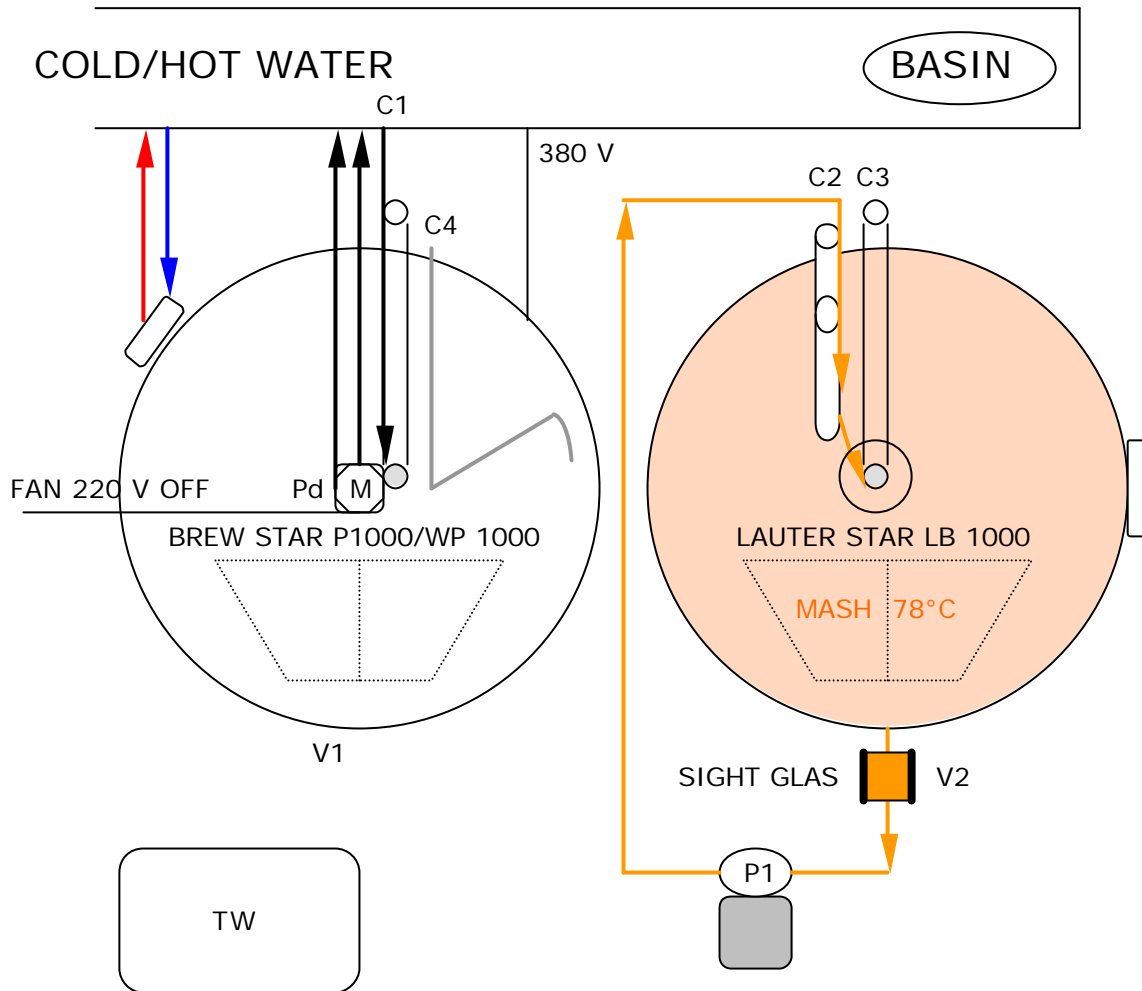


	<ul style="list-style-type: none"> • MASHING OUT BREW STAR • LAUTER REST
1	PUMP THE COMPLETE MASH INTO LAUTER STAR LB 1000 (V1 → C2)
2	SPREAD OUT THE MASH EQUALLY WITH THE ASPR
3	HOLD LAUTER REST FOR 15 MIN. ON 78°C

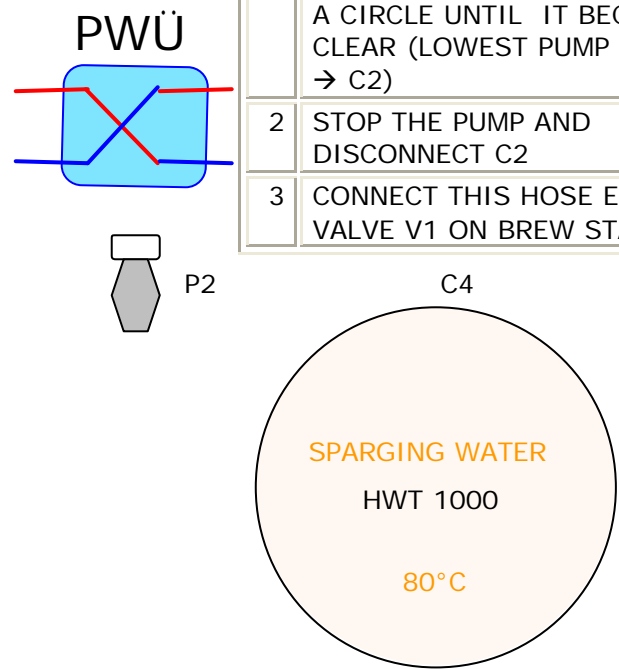


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- V1, V2 butterfly main valves

STEP 6 - CLEAR UP THE HAZE WORT:

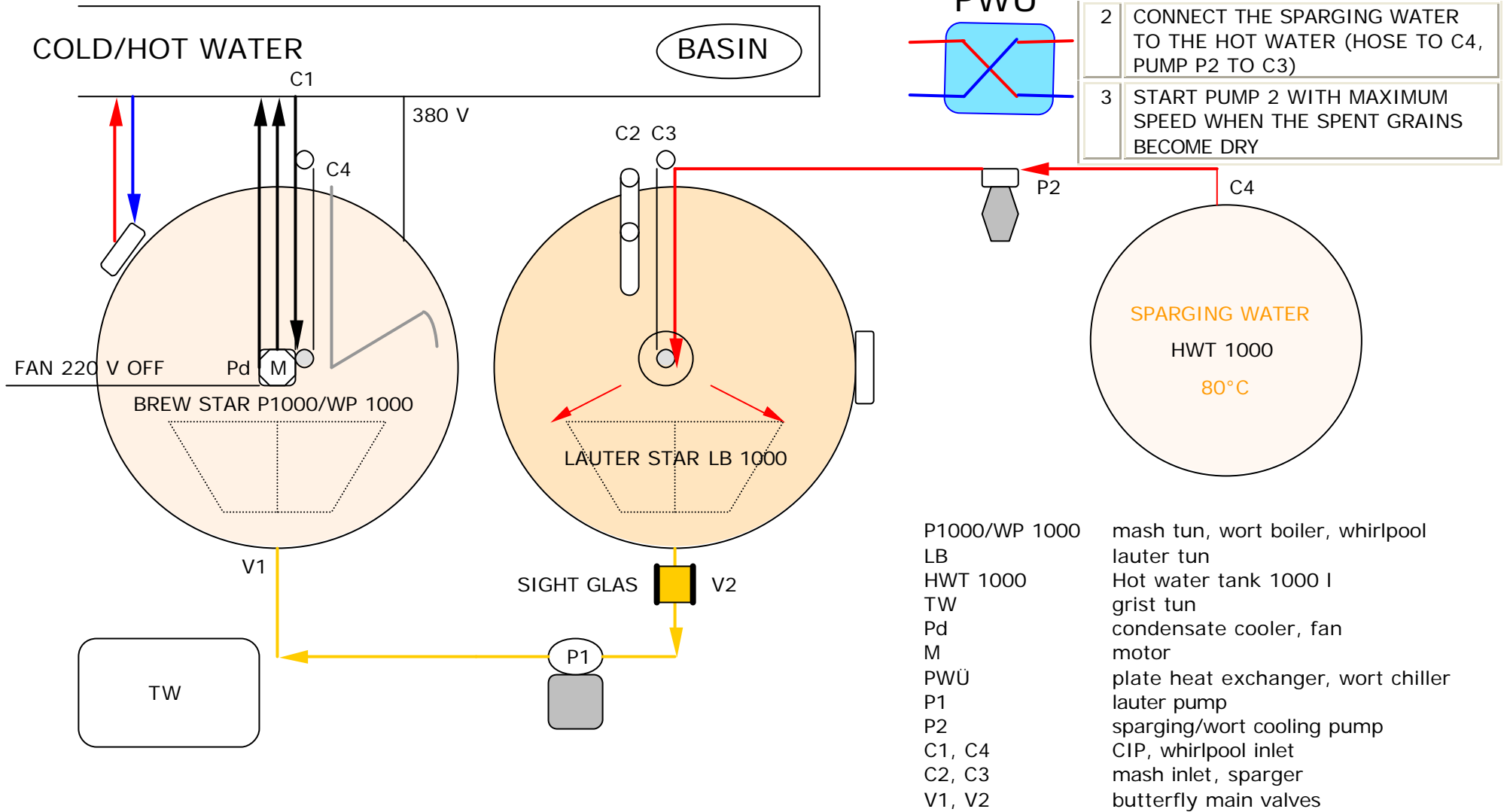


CIRCULATION OF THE UNCLEAR WORT	
1	PUMP THE HAZE WORT ROUND IN A CIRCLE UNTIL IT BECOMES CLEAR (LOWEST PUMP SPEED, V1 → C2)
2	STOP THE PUMP AND DISCONNECT C2
3	CONNECT THIS HOSE END TO VALVE V1 ON BREW STAR P1000

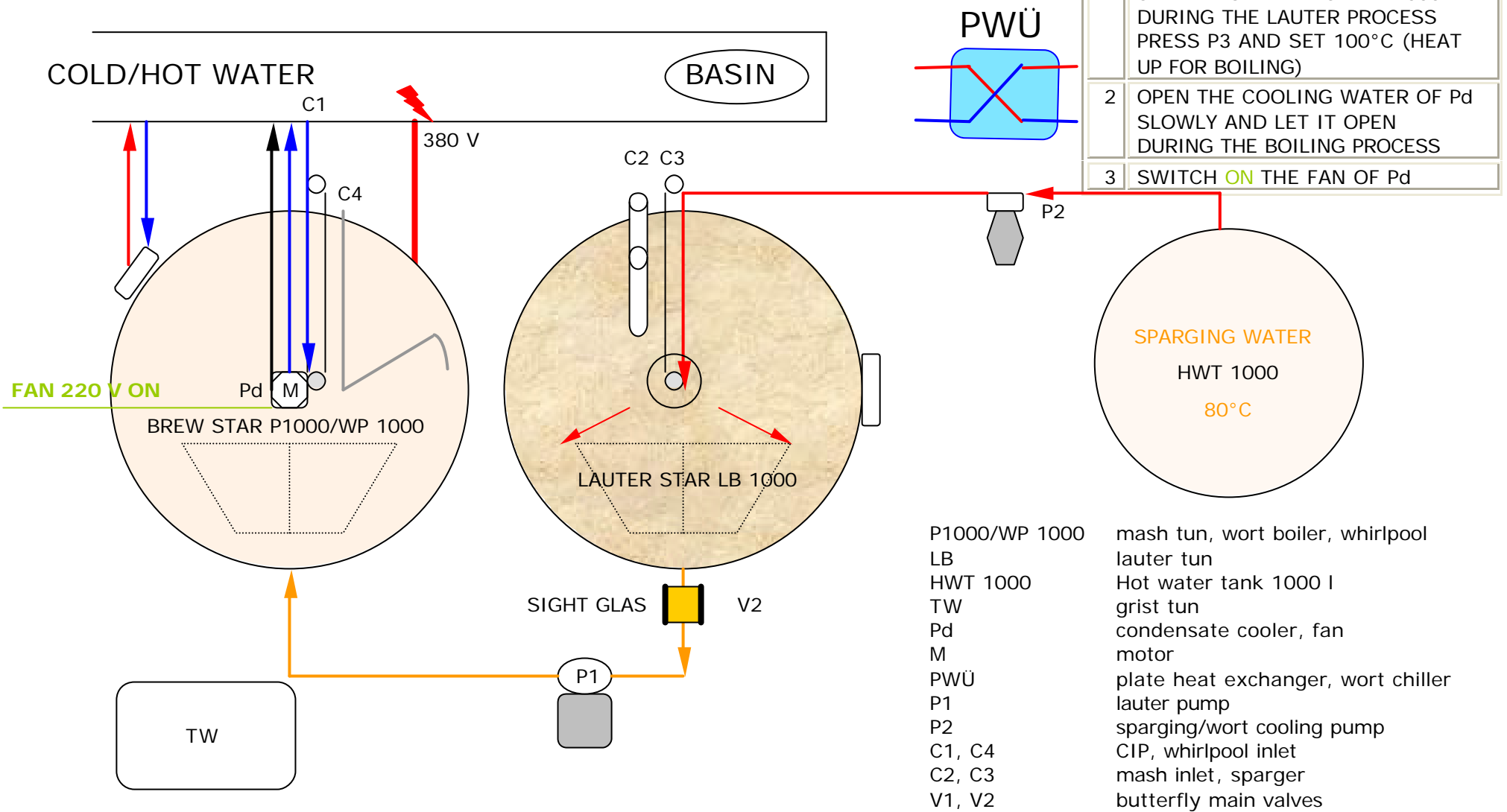


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- V1, V2 butterfly main valves

STEP 7 – LAUTERING THE HOT WORT:

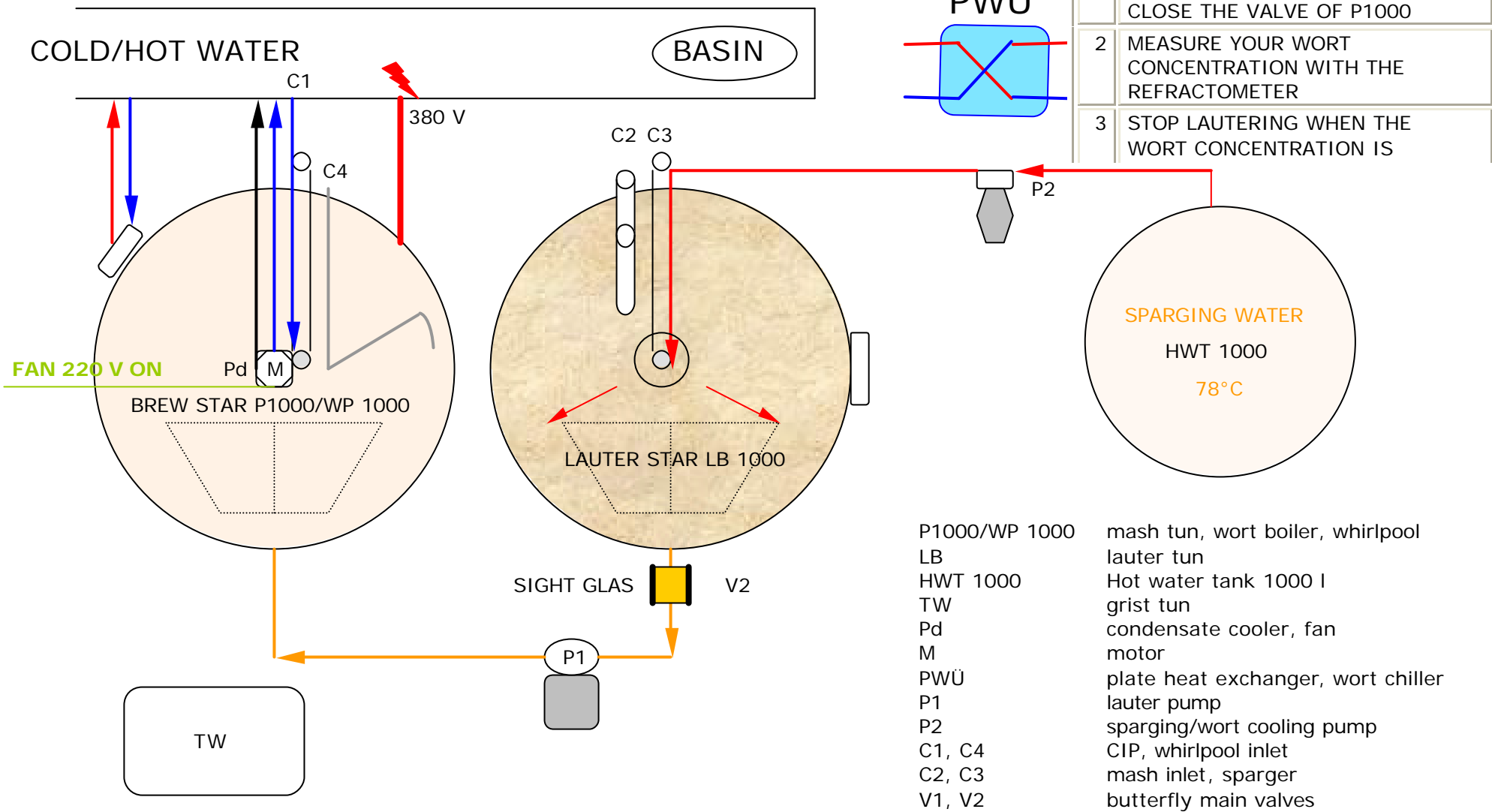


STEP 8 – HEAT UP FOR BOILING:



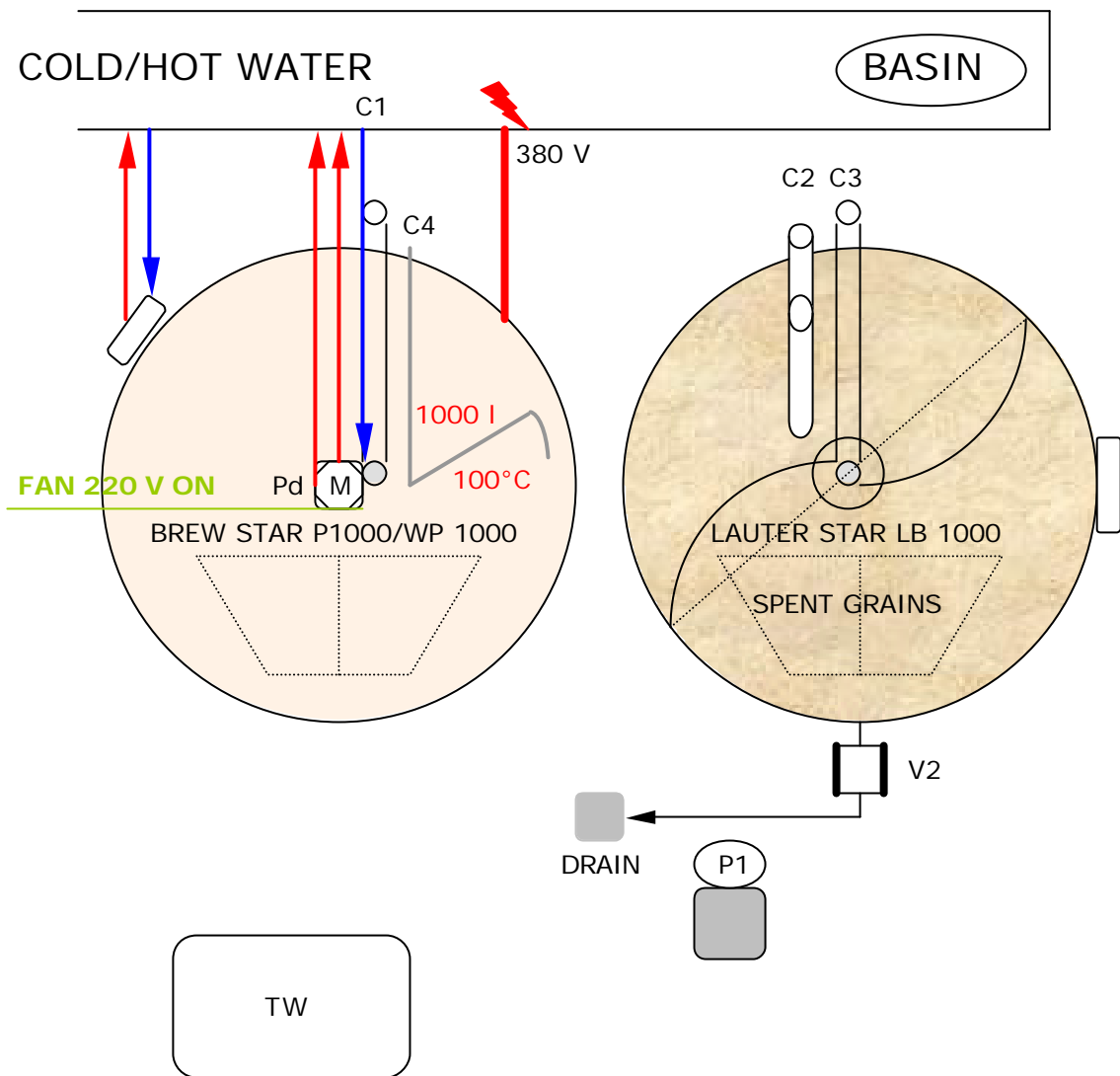
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- C2, C3 mash inlet, sparger
- V1, V2 butterfly main valves

STEP 9 - TEST THE WORT CONCENTRATION:

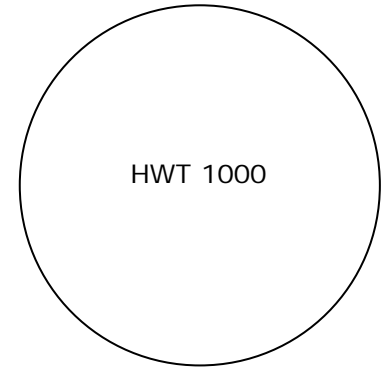
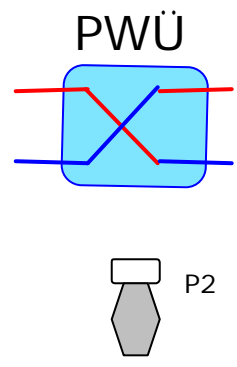


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- C2, C3 mash inlet, sparger
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STEP 10 – START BOILING THE HOPS:

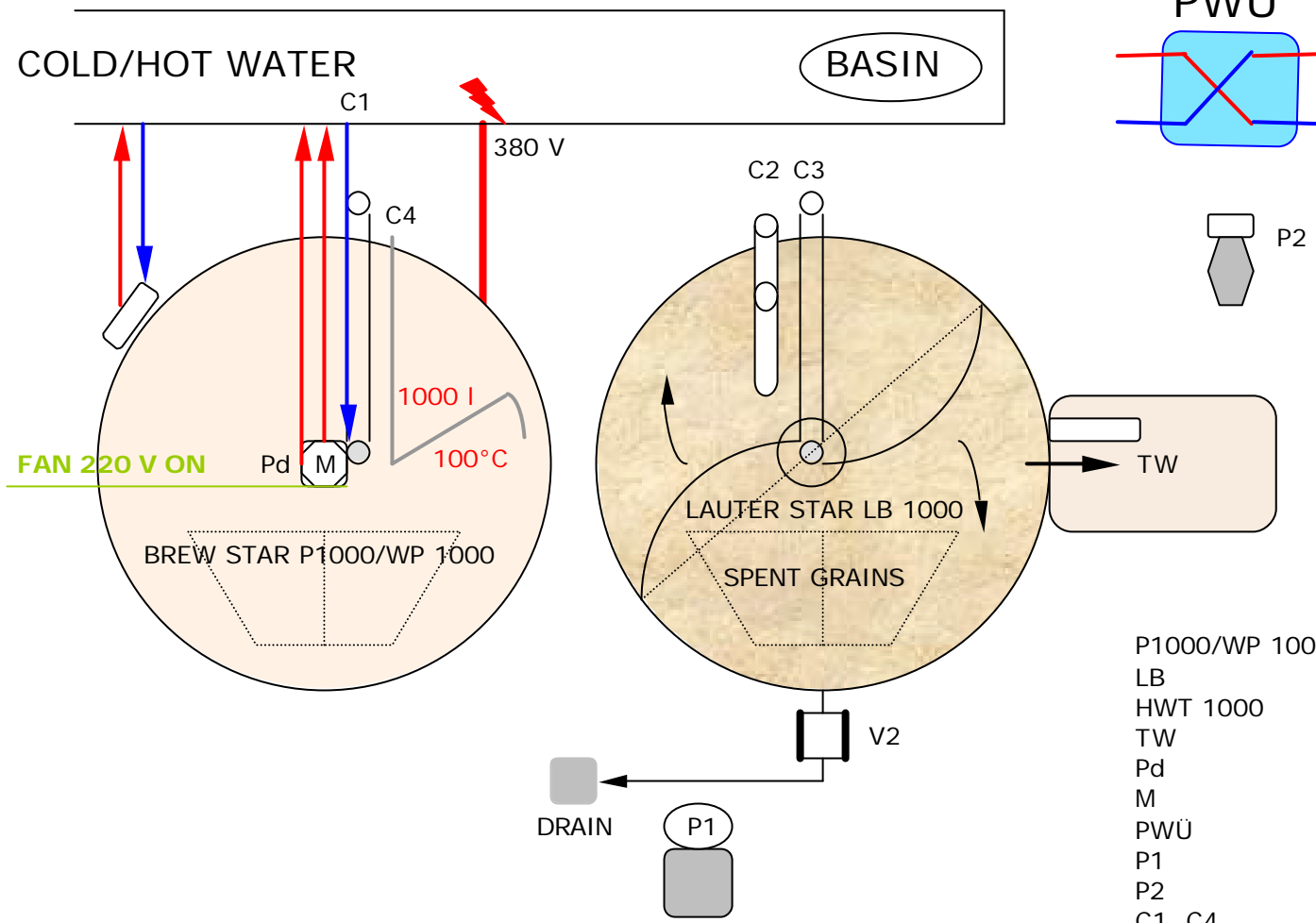


• START OF WORT BOILING PROCESS (100°C)	
1	STOP BOTH PUMPS AND CLOSE ALL VALVES
2	WHEN BOILING STARTS ON 100°C GIVE THE HOPS TO YOUR WORT
3	BOIL YOUR HOPS OVER 90 MIN.
4	EMPTY THE LAST WORT TO THE DRAIN AND LET THE SPENT GRAINS IN LAUTER STAR LB1000 BECOME DRY



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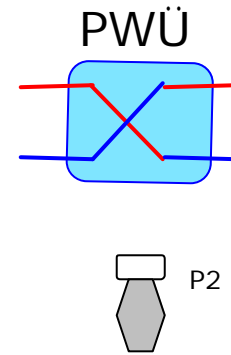
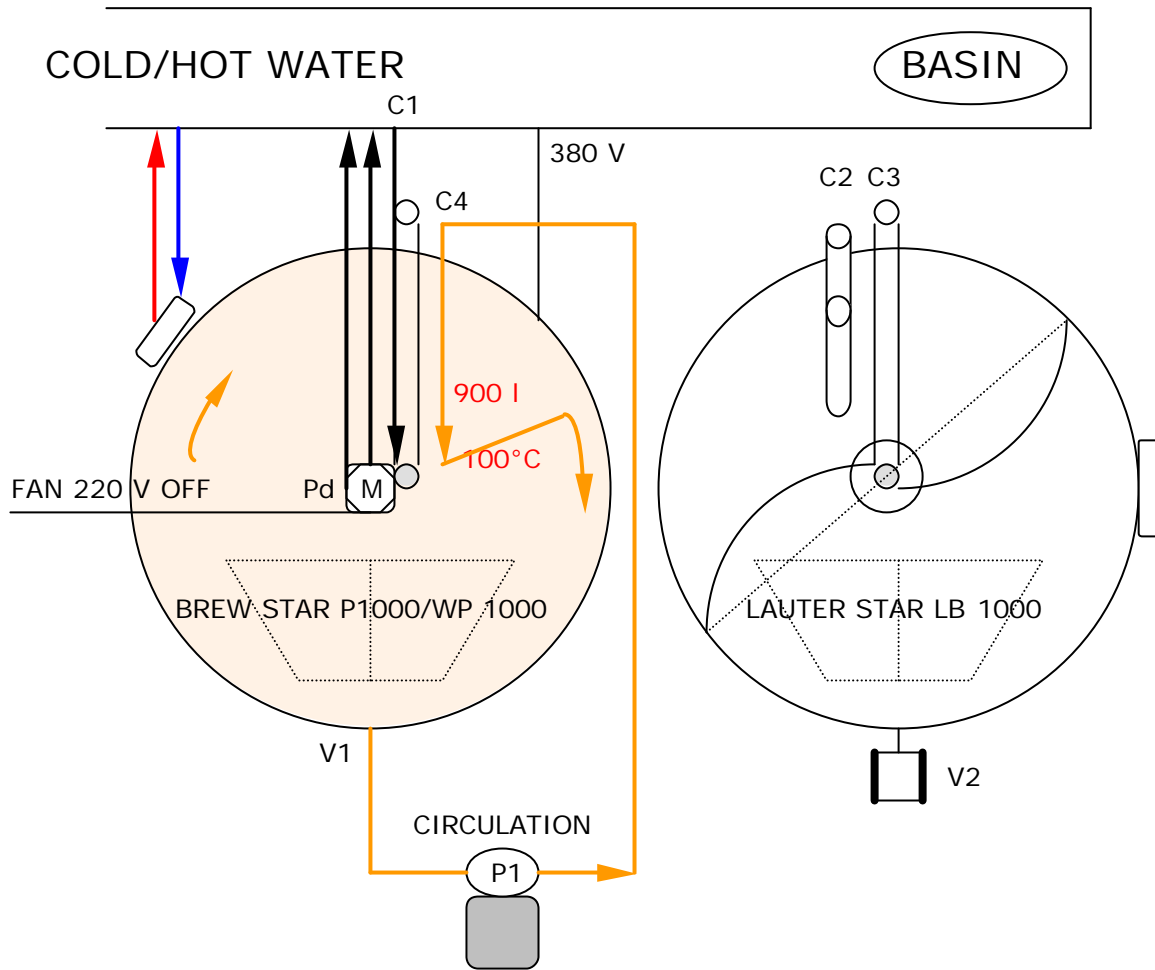
STEP 11 - REMOVE THE SPENT GRAINS:



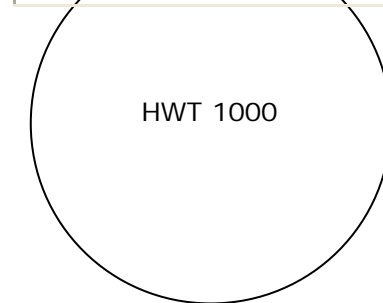
• REMOVING THE SPENT GRAINS	
1	DURING HEATING UP PROCESS IN BREW STAR, DISCHARGE THE SPENT GRAINS OUT OF LAUTER STAR LB1000 (OF P1000):
2	PLACE THE SPENT GRAINS VAT UNDER THE TANK DOOR
3	OPEN THE TANK DOOR; BE CAREFUL: 78°C HOT SPENT GRAINS!!! (USE ALWAYS GLOVES)
4	SWITCH ON THE SPENT GRAINS REMOVER AND REMOVE ALL SPENT GRAINS OUT OF LAUTER STAR LB1000 INTO THE SPENT GRAINS VAT
5	NOTE: BRING THE SPENT GRAINS OUT OF THE BREWHOUSE ROOM!!!
6	CLEAN LAUTER STAR LB 1000 THOROUGH WITH CIP

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- P1 lauter pump
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- C1, C4 CIP, whirlpool inlet
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- V1, V2 butterfly main valves

STEP 12 – WHIRLPOOL REST:

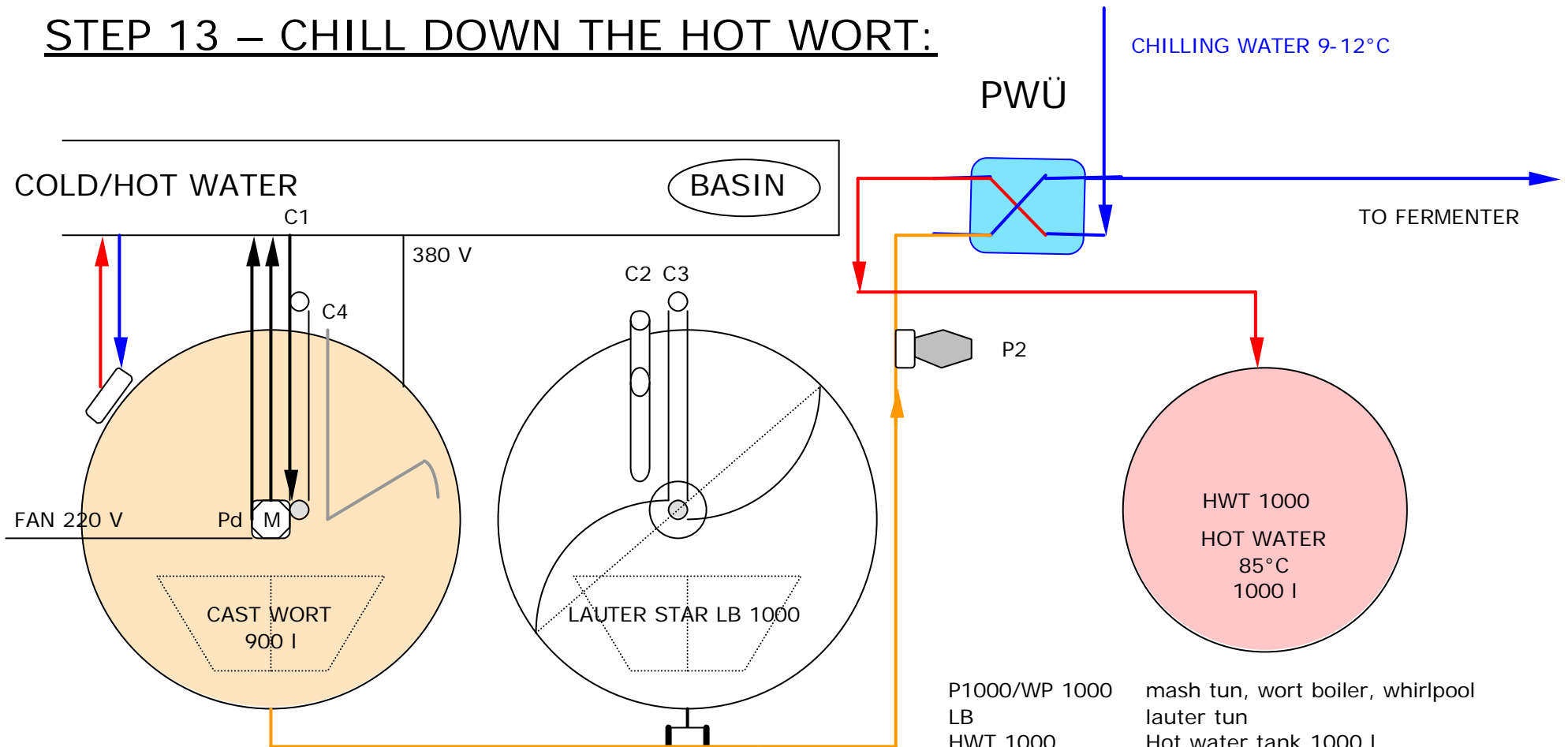


• CAST THE HOT WORT AND WHIRLPOOL REST	
1	SWITCH OFF THE HEATER OF P1000 AND THE Pd COOLER
2	CONNECT V1 TO P1 AND C4 AND START P1 WITH MAX. SPEED
3	CIRCULATE THE CAST WORT FOR 5 MIN.
4	SWITCH ON THE STIRRER OF BREW STAR FOR 5 MIN., THEN STOP
5	REST THE WORT IN WP1000 OVER 40 MIN.



- P1000/WP 1000 mash tun, wort boiler, whirlpool
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- P1 lauter pump
- P2 sparging/wort cooling pump
- C1, C4 CIP, whirlpool inlet
- C2, C3 mash inlet, sparger
- V1, V2 butterfly main valves

STEP 13 – CHILL DOWN THE HOT WORT:

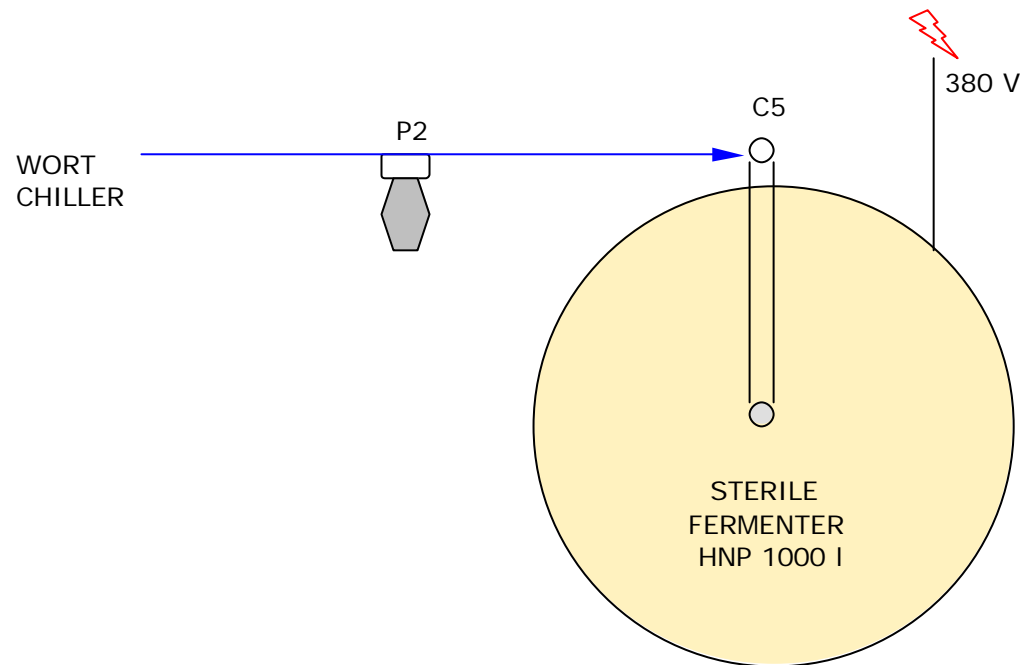


• CHILLING THE CAST WORT	
1	START PUMP P2 WITH THE MAXIMUM SPEED
2	OPEN THE VALVE OF CHILLING WATER TO THE OPPOSITE FLOW DIRECTION OF THE HOT WORT
3	WORT COOLING TAKES ABOUT 30-60 MIN.
4	SAVE THE COOLING WATER IN HWT 1000 FOR THE NEXT BREW

- P1000/WP 1000 mash tun, wort boiler, whirlpool
- LB lauter tun
- HWT 1000 Hot water tank 1000 I
- TW grist tun
- Pd condensate cooler, fan
- M motor
- PWÜ plate heat exchanger, wort chiller
- P1 lauter pump
- P2 sparging/wort cooling pump
- C1, C4 CIP, whirlpool inlet
- C2, C3 mash inlet, sparger
- V1, V2 butterfly main valves

STEP 14 – AERATION OF COLD WORT & PITCHING THE YEAST:

ATTENTION: THE FERMENTING TANK MUST BE “STERILE”



• AIRATION OF THE CHILLED ORIGINAL WORT

- | | |
|---|--|
| 1 | CONNECT THE HOSE COMING FROM THE WORT COOLER TO C5 OF THE PITCHING VESSEL (FERMENTING TANK 1000 I) |
| 2 | PUMP THE COLD WORT SLOWLY OVER THE TOP OF THE LID DURING ONE HOUR INTO THE FERMENTING TANK |
| 3 | SWITH ON THE AUTOMATIC COOLER OF THE TANK AND SET 9°C (bottom fermenting) |
| 4 | PITCH THE YEAST THROUGH THE HATCH INTO THE FERMENTER |
| 5 | SWITCH ON THE STIRRER OF THE FERMENTER |
| 6 | STOP THE WORT COOLING PUMP WHEN WP1000 IS EMPTY |
| 7 | CLOSE ALL VALVES AND CLEAN ALL EQUIPMENT |

STEP 15 - THE FERMENTING PROCESS:

- ⇒ ABOUT 8-12 HOURS AFTER PITCHING THE YEAST THE WORT STARTS CREAMING
- ⇒ CONTROL THE FERMENTING PROCESS OVER max. 7 DAYS (9°C, BOTTOM FERMENTING)
- ⇒ ATTENTION: NEVER OPEN THE LID AND NEVER GET IN TOUCH WITH THE WORT TO AVOID MICROBIOLOGICAL CONTAMINATION !
- ⇒ MEASURE THE YOUNG BEER AFTER 7 DAYS (IT MUST NOT BE UNDER 5 % Es)
- ⇒ TUNNAGE THE YOUNG BEER WHEN 5 % Es HAS REACHED AND PUMP IT INTO THE STERILE STORAGE TANK OR INTO KEGS

STEP 16 - STORAGE OF THE YOUNG BEER IN PRESSURE TANKS:

- ⇒ STORE THE BEER ABOUT 2-4 WEEKS IN THE TANKS
- ⇒ CONNECT THE BUNGUNG APPARATUS TO THE TANK AND SET THE VALUE THAT IS NECESSARY (TABLE) FOR THE TEMPERATURES BELOW
- ⇒ SET THE TEMPERATURE ON 9°C IN THE FIRST WEEK
- ⇒ SET THE TEMPERATURE ON 6°C IN THE SECOND WEEK
- ⇒ SET THE TEMPERATURE ON 3°C IN THE THIRD WEEK
- ⇒ SET THE TEMPERATURE ON 1°C IN THE FOURTH WEEK
- ⇒ AFTER 3-4 WEEKS THE BEER IS READY FOR FILLING IN KEGS OR BOTTLES

STORAGE THE KEGS IN THE SAME WAY.