

MDF board plant, South Korea

27.6 % less fuel per m³ of board, and 5.1 % more output

Jetomat® (Baelz 590) recirculation loops on the dryer's heater batteries and on the press's heating plates replaced trapped drainage. Averaged over 10 months, output rose from 315 to 331 m³ a day while B-C oil fell from 12.3 to 8.9 litres per m³.

27.6 %

less B-C oil per m³

12.3 to 8.9 L/m³

+5.1 %

more output

315 to 331 m³ a day

37 t

less make-up water a day

237 to 200 t a day (-15.6 %)

10 months

of monthly averages

after installation

01 The plant and the duty

PLANT	MDF board plant (1st and 2nd plants), South Korea
STEAM	B-C (bunker) oil-fired boilers
STEAM USERS	Dryer heater batteries · press heating plates
EQUIPMENT	Jetomat® (Baelz 590), variable-nozzle thermocompressor: one loop on the dryer, one on the press
OUTPUT	315 m ³ of board a day before

02 Before

Steam from the boilers gave up its heat in the dryer's heater batteries and the press's heating plates, and the condensate left through steam traps to a condensate tank. The traps could not clear the condensate smoothly: it backed up in the heating plates and the drying efficiency fell. The re-evaporated (flash) steam vented to atmosphere from the tank, only condensate below 100 °C went back to the boiler, and the cool feedwater caused frequent pump faults. In the rainy season and in winter the plant ran short of steam.

03 What changed

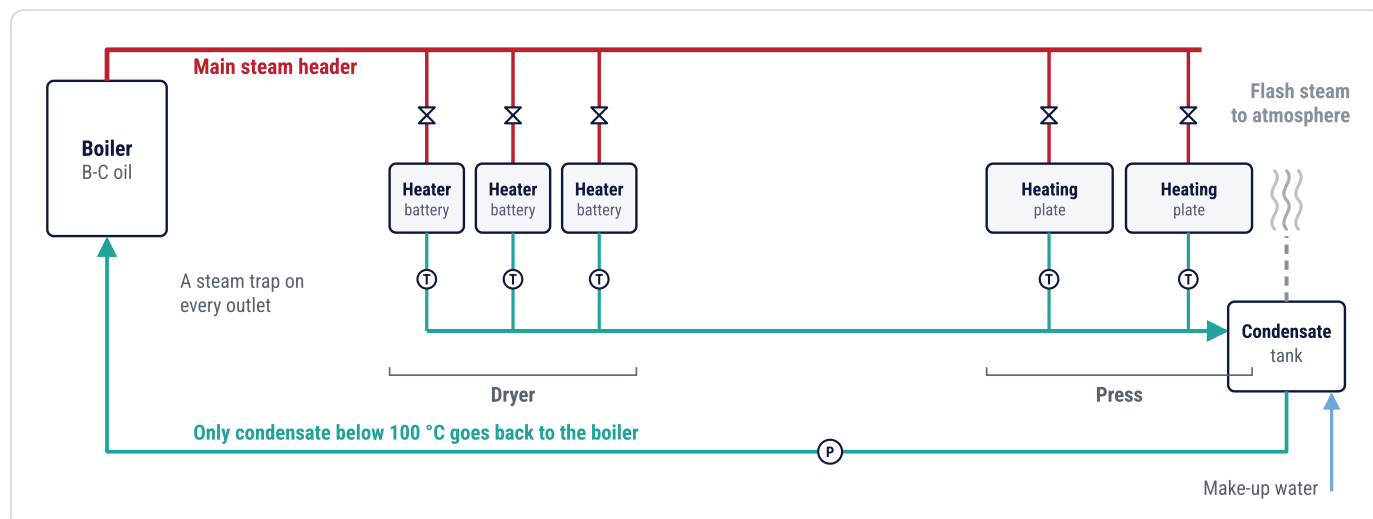
- A Jetomat® (Baelz 590) loop on the dryer: motive steam from the main header, discharge to the heater batteries.
- A second loop on the press feeds the heating plates; the heat-surface temperature is regulated through the loop.
- The steam traps came out: the heater batteries and heating plates drain untrapped into a separator vessel in each loop.
- Each separator's vapour is its Jetomat's suction, a closed recirculation loop; the condensate is pumped back to the boiler under level control.

04 Results

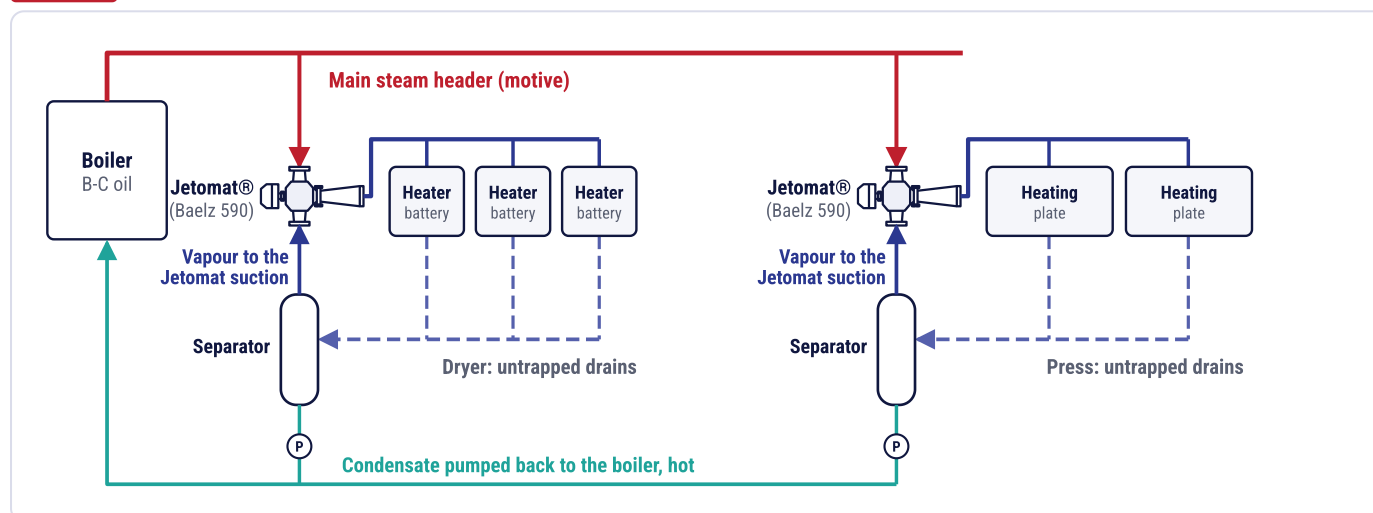
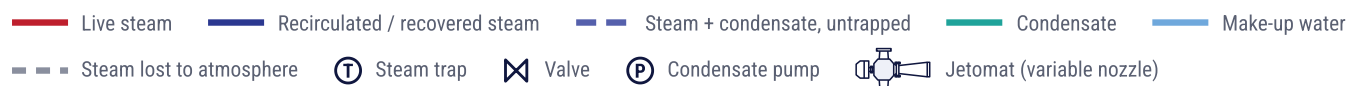
- Output rose from 315 to 331 m³ a day: 5.1 % more.
- B-C oil per m³ of board fell from 12.3 to 8.9 litres: 27.6 % less.
- Make-up water fell from 237 to 200 t a day: 37 t a day, 15.6 % less.
- The steam shortage in the rainy season and in winter, and the slow condensate outflow from the heating plates, were both solved.

05 The steam system, before and after

BEFORE



AFTER



06 Why it works

A steam trap opens only when condensate reaches it, so a heater battery or heating plate always holds some water and works below its rating. With the traps gone, the Jetomat keeps steam moving through the heat surface and sweeps the condensate out continuously into the separator. The separator's vapour, which used to vent from the condensate tank, is drawn back by the Jetomat and driven into the users again with motive steam. The condensate goes back to the boiler hot, so the plant needs less make-up water and less fuel for each m³ of board.

SOURCE Monthly averages over a 10-month calculation term after installation, compared with the plant's figures before installation (Baelz installation partner's report).

07 The installation

BEFORE



Before: the steam-trap station, with frequent trap faults



Before: condensate discharged, its energy lost

AFTER: THE DRYER LOOP



Dryer loop pipework



Heater-battery headers



Dryer loop at the heater batteries



Dryer loop beside the heater battery

AFTER: THE PRESS LOOP



Press loop pipework



Press loop vessel



Gate valves on the condensate lines under the heat surface

PHOTOS Installation photos: Baelz installation partner.



Spend once. Use twice.

i-Kcal Systems Engineering LLP · Plot No. 17, Tiny Industrial Estate, Punyadham Ashram Road, Kondhwa Budruk, Pune 411 048
Mr. Nitant Harani · +91 8805 3541 64 · nitant@i-kcal.com · www.i-kcal.com

Jetomat® is a registered trademark of W. Bälz & Sohn GmbH & Co., Germany.