

Corrugated board plant, South Korea

24.6 % less fuel oil an hour, 7.5 % more board

A Jetomat® (Baelz 590) between the steam header and the corrugator, recirculating the flash vessel's steam, took the boiler from 174 to 131 litres of bunker-C oil an hour, while monthly output rose. In service since 25 December 2003.

24.6 %

less fuel oil an hour

174.00 to 131.20 L/h

31.1 %

more board per litre

32.70 to 42.87 m²/L

80 %

less water supply

1,257.65 to 245.59 L/h

≈ 4 months

payback

as calculated by the plant

01 The plant and the duty

PLANT	Corrugated board plant, South Korea
BOILER	Bunker-C oil fired, set at 11.8 bar g
SITE STEAM	8.8 bar g (180 °C)
ON THE HEADER	3 cylinder dryers · 2 hot presses
EQUIPMENT	Jetomat® (Baelz 590), variable nozzle, under discharge-pressure control

PLANT RECORDS, ONE MONTH EACH

	Jan 2003	Jan 2005
Oil, L/h	174.00	131.20
Board, m ² per L	32.70	42.87
Output, m ²	1,478,560	1,588,929
Boiler hours	259 h 30	257 h 20

02 Before

Steam from the 10.8 bar g header fed three cylinder dryers and two hot presses, each draining through a steam trap. The condensate collected in a flash vessel at 4.9 bar g; its flash steam went to the feed water tank and a condensate pump returned the rest to the boiler.

03 What changed

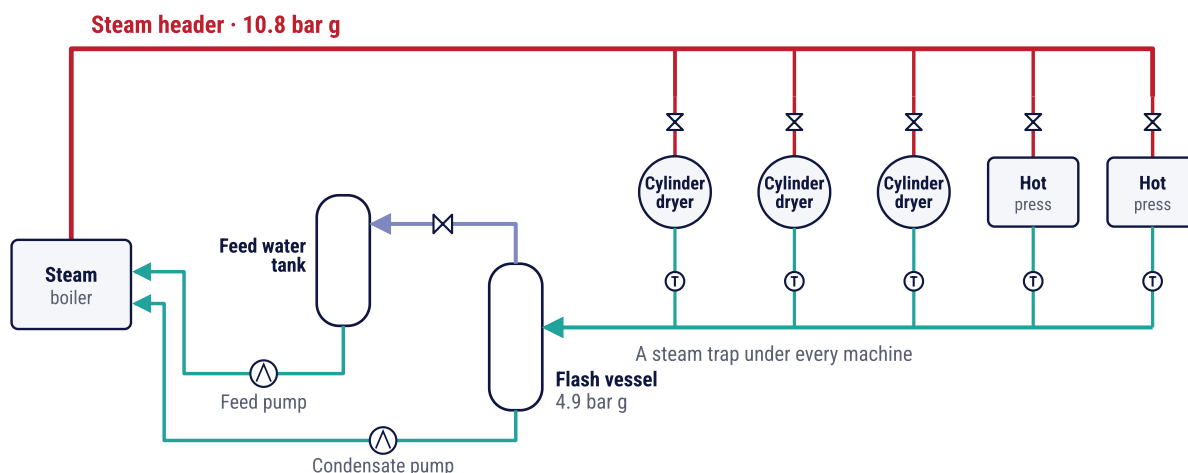
- A Jetomat® (Baelz 590) takes header steam as motive and supplies the dryers and presses at 9.8 bar g.
- The steam traps came out: every machine drains straight to the flash vessel, now at 9.3 bar g.
- The flash vessel's steam is the Jetomat's suction: a closed recirculation loop.
- A pressure controller on the discharge sets the Jetomat.

04 Results

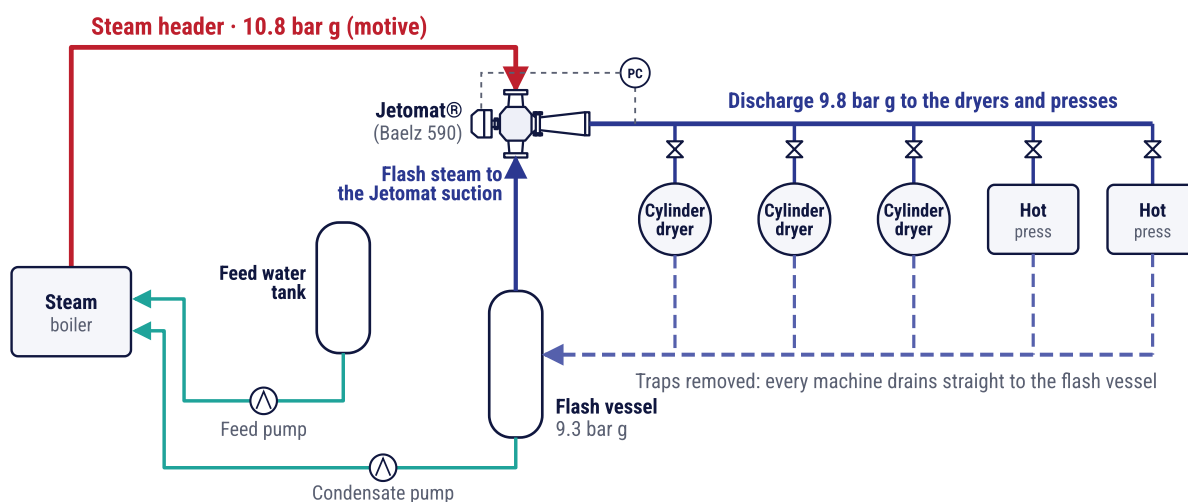
- Bunker-C oil per boiler hour fell from 174.00 L (January 2003) to 131.20 L (January 2005): 24.6 % less.
- Board per litre of oil rose from 32.70 to 42.87 m²: 31.1 % more. Monthly output rose 7.5 %, from 1,478,560 to 1,588,929 m².
- Water supply fell from 1,257.65 L/h (March 2003) to 245.59 L/h (January 2005), and the trap maintenance cost went with the traps.
- About 4 months payback, as calculated by the plant on the saving per m² of board.

05 The steam system, before and after

BEFORE



AFTER



06 Why it works

Cylinder dryers and hot presses stay hot only while steam keeps moving through them and condensate keeps leaving. With the traps gone and the Jetomat lifting the flash vessel's steam back to 9.8 bar g, steam flows through every machine continuously and the condensate is swept out; the heat in the flash steam goes back to the machines instead of to the feed tank. The boiler fires less oil per hour for more board.

SOURCE The plant's monthly operating records (fuel oil, boiler hours, output, water), January 2003 to January 2005; the Jetomat in service since 25 December 2003. Pressures converted from kg/cm² to bar g.