

Preheating Systems

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The idea behind preheating systems

Advantages of preheaters compared to press extensions

- lower costs if press extensions require new foundations
- much shorter downtime for installation
- less space requirements
- reduced production costs / m³ because of capacity increase
- applicable for all kind of pressing systems
- more flexibility of thickness and density of the product

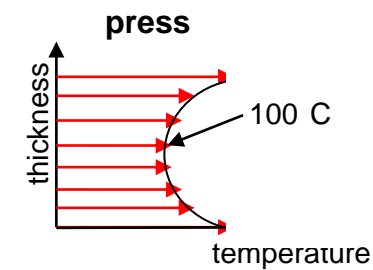
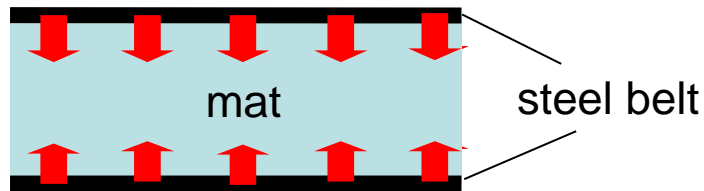
Key formula for preheating systems

$$1 \text{ C} = 1\%$$

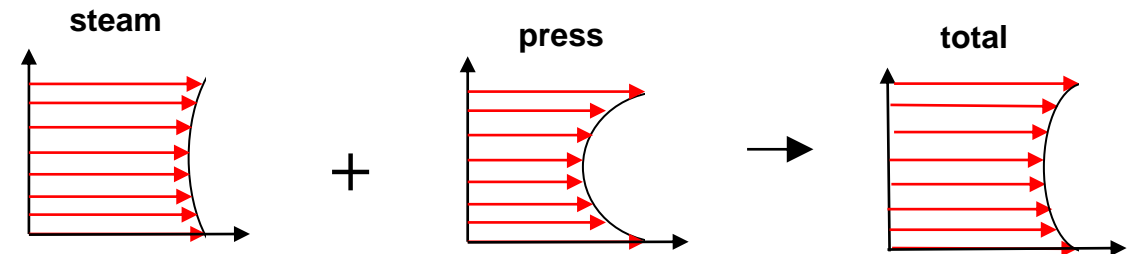
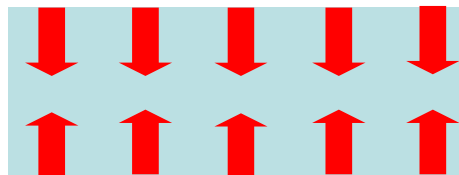
1 C higher mat temperature = 1% production increase in the press

Function: Microwave and steam preheating

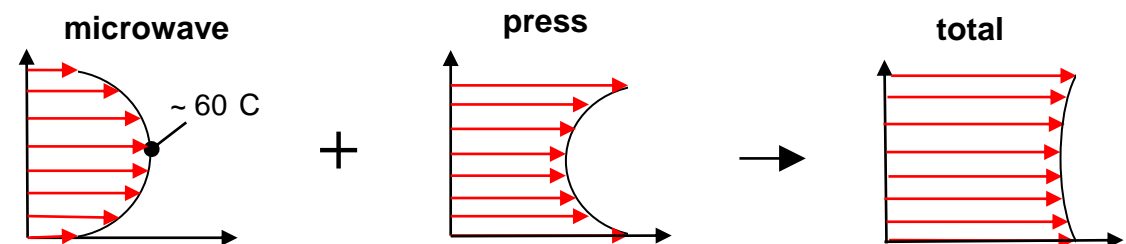
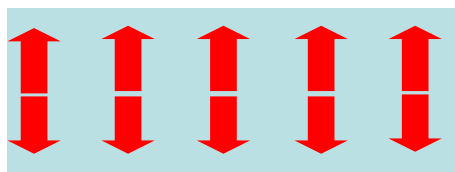
- Conventional press heat transfer and moisture transfer:



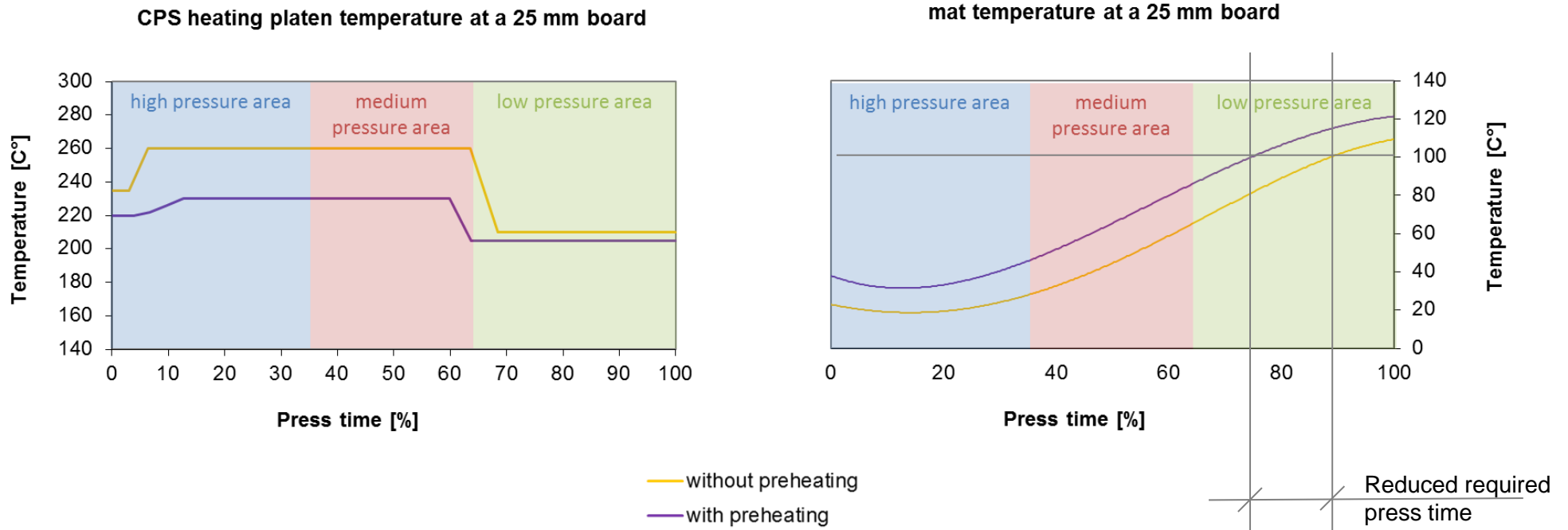
- Steam** preheater heat transfer and moisture transfer:
(Adding moisture)



- Microwave** preheater heat transfer and moisture transfer:
(Shifting existing moisture)



Function: Temperature flow - heating platen, mat



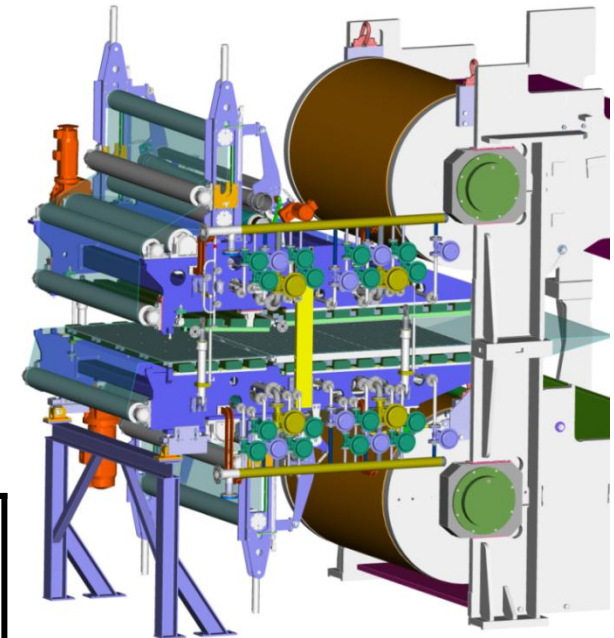
- Longer live time of the thermal oil
- Reduced required press time, therefor capacity increase or product flexibility

References for steam preheater

- 6 lines installed
- PB - 2
- MDF - 1
- OSB – 1
- CSS – 2

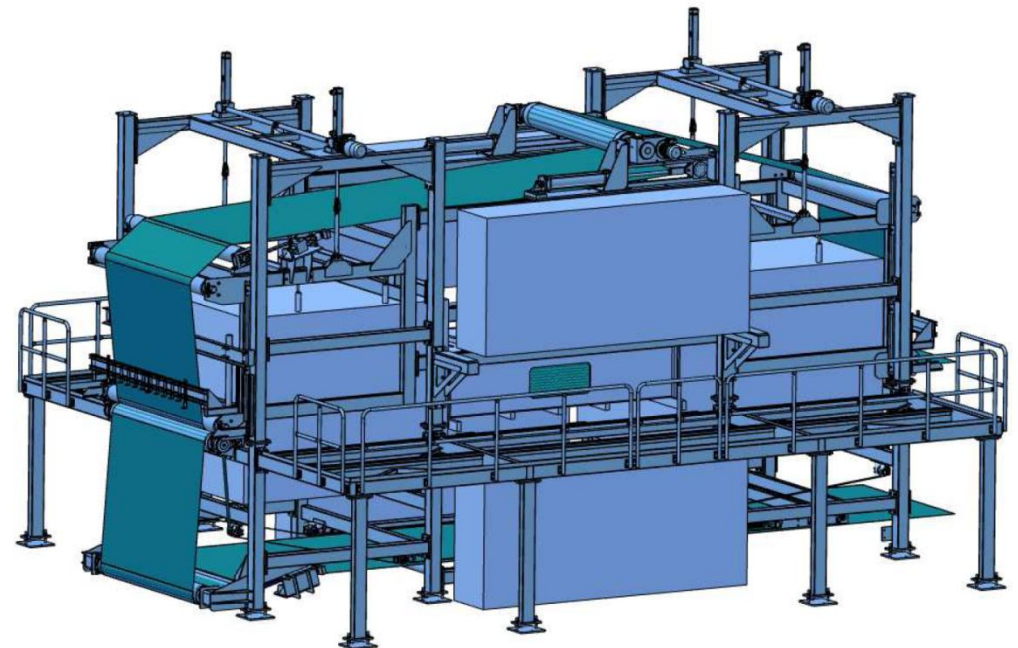
- Achieved capacity increase on a PB line:

Final thickness [mm]	Density [kg/m ³]	Pressfactor without preheater [s/mm]	Pressfactor with preheater [s/mm]	Capacity Increase [%]
12	700	4,8	4,6	4
18	660	4,3	3,3	25
28	630	5,3	3,9	27
38	610	6,3	4,5	28



References for microwave preheater

- 7 lines installed
- PB - 1
- LVL - 6
- Achieved capacity increase is independent on the thickness of mat about 30% by a temperature rising of approx. 30 K.



Comparison: microwave and steam preheater

microwave preheater:

- For LVL, PB, MDF, OSB/OSL
- Electrical energy necessary
- Space requirement approx. 7 – 10 m
- Easy to operate
- Energy efficiency is only dependent on the throughput of mat

steam preheater:

- For PB, MDF and OSB/OSL
- Steam supply necessary
- Space requirement approx. 2,5 – 5 m
- Challenging operation (technology /moisture)
- Energy efficiency is dependent on throughput and density of mat