

# Maxiflo performance undisputed

*Sawmills reduce bottlenecks with Maxiflo and increase their production output.*

The Maxiflo ejector has become the leading condensate removal system in the sawmilling industry, with over 70 kilns fully converted. With unequalled performance and reliability, the Maxiflo has been in operation for over 20 years in South Africa on a wide variety of applications.

After years of continuous operation with the Maxiflo system, sawmills have reported that no spares or replacements have been required and that initial operating improvements had been sustained. This includes reduced drying times, lower fuel consumption and good quality product. Even sawmills, which had well maintained traps before Maxiflo conversion, reported similar results.

What's unique about the Maxiflo, explain the manufacturers, Industrial steam Products (ISP), is that it can reduce a plant's steam usage by as much as 20%, with only a 2% consumption. A net steam savings of 18% can therefore be achieved after total plant conversion and sustained for over 20 years.

Like all steam ejectors, the Maxiflo has no moving parts and is sometimes associated with the low efficiency orifice plate trap of the past. As a result, ISP has sought to dispel some common myths surrounding their system.

## Myth 1 – Maxiflo can only save if steam traps are worn out or failed open

ISP acknowledges that there will be a steam savings if worn or failed open steam traps were replaced with new Maxiflo ejectors and therefore regard this as the secondary or bonus savings. Primary savings, however, is because the Maxiflo reduces heat transfer insulators continuously from process equipment at start-up and during operation, as shown in Figure 1.

According to the findings of the accredited authority on steam, Sir Oliver Lyle, reducing these insulators can improve heat transfer efficiency by 20% or more, which results in lower steam consumption.

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# MAXIFLO® Steam Savings

LEVEL 4 BEE ACCREDITED



## 73 KILNS CONVERTED TO MAXIFLO®

### OPERATING BENEFITS

The Maxiflo® is a condensate ejector system which harnesses kinetic energy from steam to draw condensate, air & non-condensable gases from process coils, faster than conventional steam traps. This boosts the performance of kilns, which results in higher production output.



### Maintenance Advantage

- No moving parts
- Reduced steam trap maintenance
- Efficient service life exceeds 20 years
- Resists water hammer & thermal shock



industrial steam products



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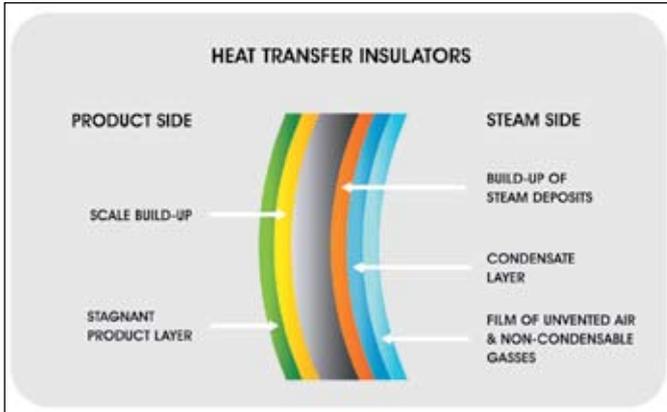


Figure 1

Air and non-condensable gases present in the steam space of heating coils, cannot condense like steam and drain away. Because conventional thermostatic air vents only react to large temperature changes, these gases can occupy heat transfer areas for prolonged periods of time before being vented. Pockets of air and gases trapped in heating coils cause cold spots, whereby heat fails to transfer efficiently to the product.

The Maxiflo system by contrast, harnesses kinetic energy from its exhaust steam, which accelerates the condensate discharge from heating coils, causing a continuous "vacuum effect" on heat transfer surfaces. Condensate droplets are drawn away as soon as they are formed, while pockets of air and non-condensable gases present in coils, are dislodged and vented out at steam temperature.

The continuous Maxiflo ejection process reduces heat transfer insulators and maximises thermal efficiency of process equipment, as shown in Figure 2.

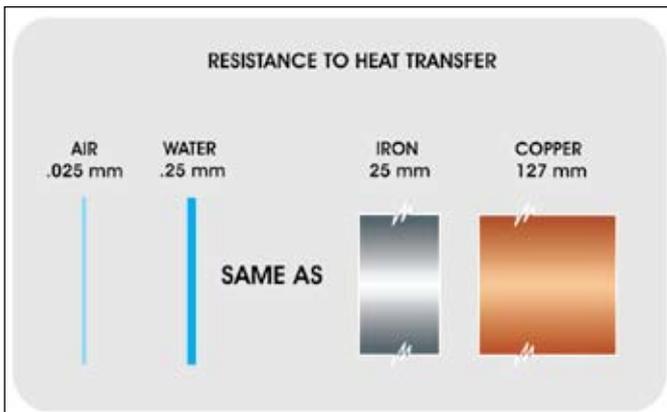


Figure 2

## Myth 2 – Maxiflo can't handle varying loads

Unlike orifice plate traps, the Maxiflo has a unique design where only 25% of the ejector's maximum condensate capacity, can efficiently block 90% of the steam flow.

For example, a Maxiflo ejector sized for a kiln booster coil at 4 bar DP, would have a maximum start-up capacity of 600 kg/h. With only 150 kg/h of condensate present at lower loads, the exhaust steam would be 2,5 kg/h, as shown in Figure 3.

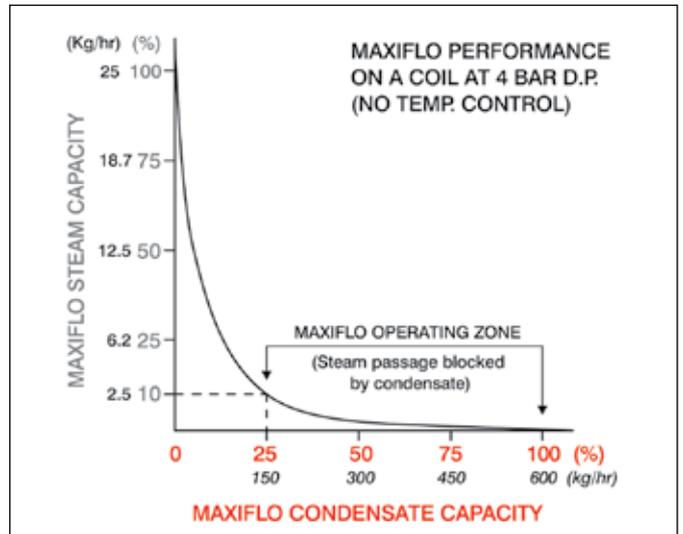


Figure 3

When coils are temperature controlled, the steam pressure before the Maxiflo reduces automatically when condensate loads decrease. This action self-regulates the Maxiflo down to 0% of maximum condensate capacity, with only minimal exhaust steam.

According to manufacturers, conventional steam traps lose some steam between cycles or consume steam from heat radiation through the large trap bodies. Maxiflo ejectors are small and compact in physical size and don't radiate much heat. Needless to say they can never fail open and blow large amounts of steam to the atmosphere.

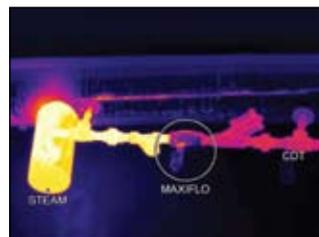


Figure 4

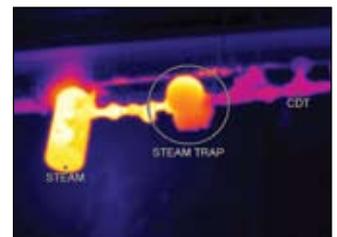


Figure 5

Figures 4 and 5 are thermal images of the Maxiflo operating at 25% of its maximum capacity and a mechanical steam trap, on the same application.

It can clearly be seen that the Maxiflo ejector does not pass excessive steam nor does it back up any condensate.

The Maxiflo system has proved to be a reliable and lasting solution for condensate removal. Only low maintenance is required and steam loss remains minimal, throughout its long lifespan.

