The **Streamline Range...**

Proprietary chemical certifications include;

- Immersion silver.
- Oxide Replacement chemistries.
- Adhesion promoting chemical treatments.
- OSP's.
- Direct Metallisation processes.

Product features...

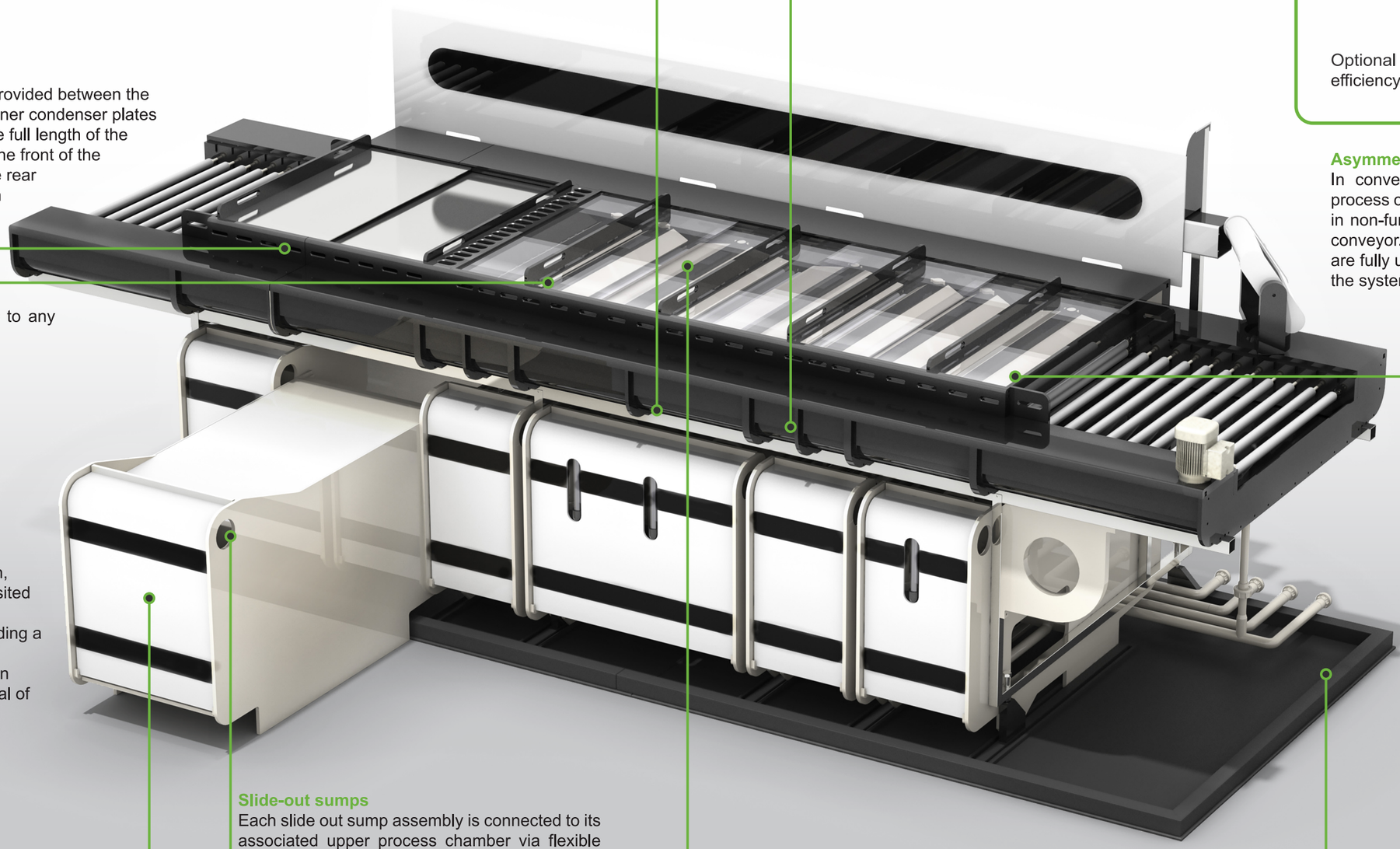
De-coupling chassis
The upper conveyor/process chamber assembly is supported and located on chassis rails that permit movement in the long axis. By decoupling the process chamber and sump; warp, twist and yaw resulting from heating and cooling is eliminated. Streamline board handling equipment can be plugged into the chassis rails that are supported by and adjustable stainless framework.

Continuously welded process chambers
Further reduce the system length by permitting baffles and process chambers to be located at any pitch. Extended systems can be supplied in bolt together sections or extrusion welded on site.

Optional auto loader and collector that maximises efficiency.

Cross-flow extraction
Front and rear porting is provided between the sliding top cover and the inner condenser plates and extends throughout the full length of the system. Air is drawn from the front of the machine by a demountable rear duct eliminating fumes with minimal solution drag-out.

Asymmetric alignment
In conventional modular design the sump and process chamber occupy the same space resulting in non-functional areas either above or below the conveyor. By contrast these normally 'dead' areas are fully utilised, therefore reducing the footprint of the system.



Sliding top covers
Provide fast, clear access to any section of the machine.

Free-form chamber layout
This is made possible by the combination of a single process chamber and the constant pitch conveyor. Non-functional rollers of conventional designs are eliminated further reducing system footprint. The proximity of the fluid engine process chamber and fluid-knife rinse head is limited only by the number of containment rollers specified.

Integrated services distribution ducts.
These are often the responsibility of facilities engineering. The extraction, drain and water feeds are sited below the electrical interconnection duct, providing a single point for facilities connection. Post-installation access is gained by removal of the sumps.

Front only maintenance access
Once installed there is no need to access the rear of the equipment, further reducing the footprint and enabling 'back to wall' or 'back to back' installation.

Slide-out sumps
Each slide out sump assembly is connected to its associated upper process chamber via flexible delivery hoses and demountable rigid return ducts. This feature facilitates cleaning and reduces the space needed for maintenance. Each fabrication incorporates the 'process stage' tank(s) and any associated pollution control and rinse stages. Pumps, heaters, cooling coils and controls are attached to the assembly and interconnected to the remote controls via an extendable umbilical cable.

Fume Condensers
Mounted above each individual Fluid Engine and Fluid-Knife are cooled by the cross flow exhaust. Fumes condense into the process chamber to reduce solution loss and air pollution.

Integrated containment tray
The Streamline range is assembled on a polypropylene bund tray fabrication that incorporates slide-out sump runners, chassis support location pockets and services mountings.

Unique and patented fluid delivery tools include...

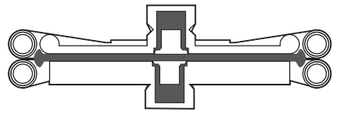
Streamline Fluid Engine

Streamline Fluid Engine

In contrast to conventional immersion chambers the Streamline Fluid Engine immersion chambers have no rollers and provide laminar solution flow at >100X their internal volume per min, resulting in faster more uniform reactions.

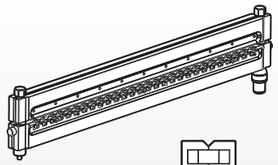
The engine comprises two plates closed at each side to form a narrow chamber. Fluid containment rollers, mounted at the entrance and exit of the chamber, push and pull both flexible and rigid materials through this chamber. Fluid is injected at the centre of each plate via 2 continuous slots or knives, resulting in steady boundary layers balancing and guiding the material in transit. The leading and trailing edges of the plates are shaped to take advantage of the Coander effect, diverting the boundary layer diffusion point away from the panel entry and exit zones. This maintains the laminar flow and diverts fluid above and below the plates, preventing flooding and material deflection.

While the Laminar Flow Fluid Engine application is central to the Streamline Range many other innovative and patented technologies are incorporated along with more conventional techniques to provide a wide range of chemical treatments.



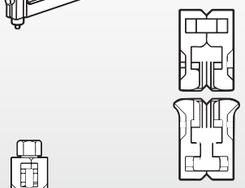
Streamline FluidKnife rinse heads

These heads provide rinsing between processes. Rinse efficiency is a function of the volume of water applied. The FluidKnife delivers re-circulated rinse water at double the flow typically used in conventional rinses while occupying a fraction of the space.



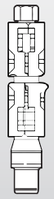
Streamline Jet Knife

These heads incorporate multiple upper and lower high impingement conventional spray jets to displace salts, fluxes and other 'contaminants' that are not readily dissolved. The offset opposing jets balance material between the rollers and the ported entry and exit guides, ensuring contactless entry and exit to the spray zone.



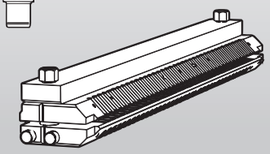
Wetting Knife

These heads displace gas or liquid from blind features and small holes, wetting surfaces prior to a chemical process or treatment.



Parallel Drying Head

High velocity air supplied and heated by an inverter controlled side channel blower feeds air jets configured to provide a pressure drop across one side of the panel such that atmospheric pressure removes water from holes prior to the air jet, enabling efficient drying over a short distance.

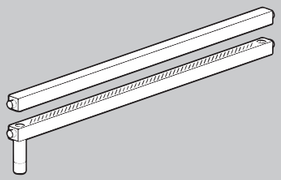


Inclined Drying head

For higher conveyor speeds and thicker materials the inclined fluid knife dryer provides unparalleled drying. Precision, fixed knives deliver high velocity air heated by the inverter controlled side channel blower, ensuring a complete drying solution for any material from flex circuit to back panel.

Inline Oven

Programmable temperature forced convection ovens to raise the temperature of a dried panel.



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Streamline Wet Process Equipment

Smaller, more efficient and more capable than conventional equipment

This Streamline range takes its name from the unique laminar or streamline flow treatment chambers that replace conventional flood and spray chambers used in earlier designs. These fluid engines result in faster and more uniform reaction, reducing processing time and equipment footprint.

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