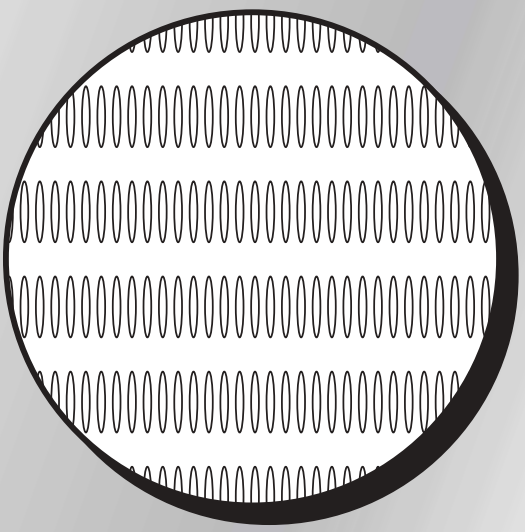
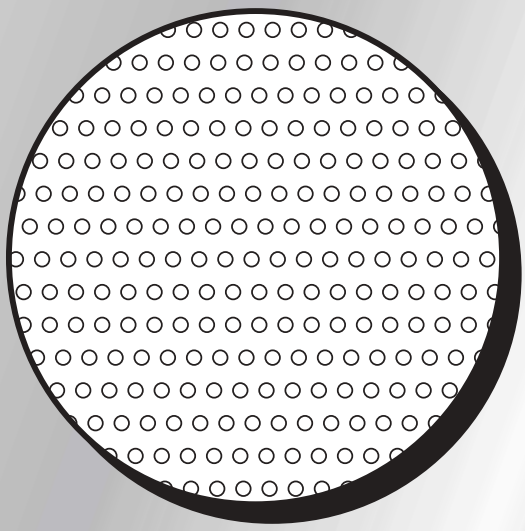
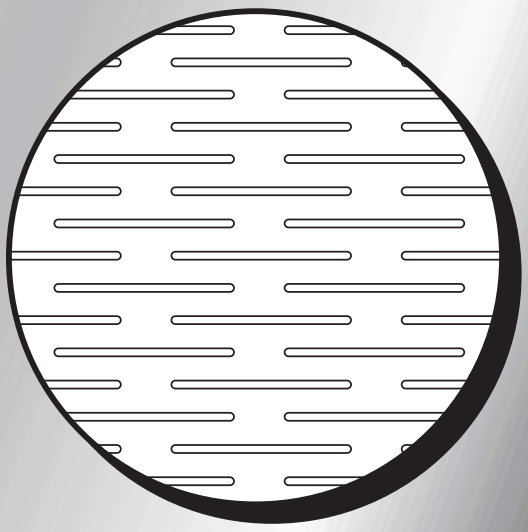
ActionLaser Pty Ltd

- **Food Processing**
- **Petrochemical Industry**
- **Mineral Processing**
- **Pulp & Paper**
- **Water Treatment**
- **Oil Drilling & Exploration**
- **Pigments & Powders**
- **Plastic Recycling**

- **High performance laser-drilled products**
- **World leader in stainless steel filter screens and tubes**
- **Custom laser perforations for end-users and OEMs**







LaserScreens

AVAILABLE WORLDWIDE

ActionLaser has unique capabilities using patented processes to produce finely perforated sheet and tubular products. These include high performance, laser-drilled stainless steel screens (LaserScreens), sieves, aerators, support grids and a wide range of other products.

What is an ActionLaser LaserScreen?

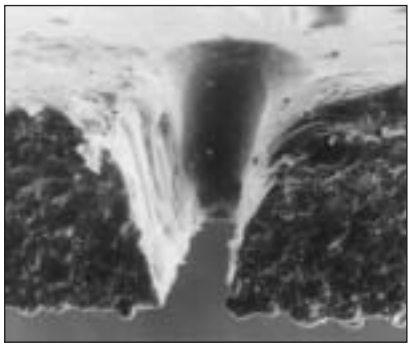
LaserScreens are sheets of stainless steel containing millions of tiny tapered holes. The holes may be circular or slot shaped. Each hole is accurately perforated by a patented laser process to specific dimensions and open area.

Unlike almost all other methods for manufacturing screens, laser drilling enables holes to be much narrower than the thickness of the material. Slot widths or hole diameters are available between 50 and 700 microns (0.05 and 0.7 mm) while material thickness is typically between 0.2mm and 3mm. High open area percentages are available (for example, up to 25% with 280 micron diameter holes in 0.7 mm thickness).

Great flexibility in screen shape and design is offered. The perforated area may be up to 0.8 metres wide and 2 metres long. Perforated and unperforated areas are routinely patterned and shaped to customer specifications.

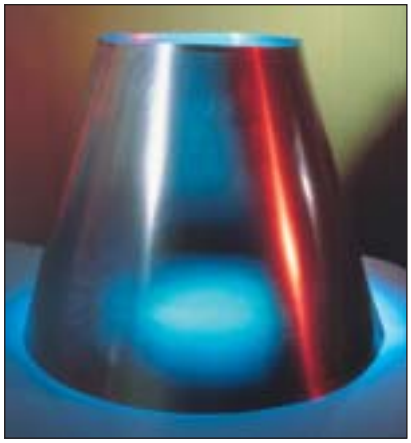
LaserScreen perforations have very sharp, hardened working edges and high relief angles to achieve high separation efficiencies and prevent clogging. LaserScreens have close tolerances on slot width to accurately size particles, and very smooth working faces to aid flow. The working face is often plated with hard chromium to enhance its resistance to abrasion.

Although stainless steel is the popular choice of material, a wide range of metals can be laser-drilled.

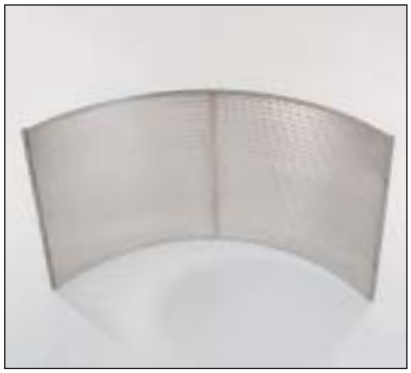


100 Microns ⊢——⊣

***Cross Section** of a LaserScreen slot, showing high relief angle, very sharp edges and hard, fused surface . (magnification x 150).*



Centrifugal Screens
LaserScreen for sugar centrifugal : diameter 1.0 m, slot width 60 microns, 0.22 mm thick 316L SS with chromium coating.



Sieve Bend
120 degree sieve bend (710 x 1592 mm).

LaserScreens for Continuous Centrifugals

For the sugar industry, LaserScreens have a greatly increased wear resistance compared with chrome-nickel screens. Shorter slots and tougher material prevent enlargement and stretching of the slots over the backing screen. LaserScreens are also less likely to clog or corrode.

Fine LaserScreens for chemical and food industry applications have the benefits of chemical inertness, increased lifetime and strength.

Heavier duty centrifugal screens are used in high load sugar refinery applications, and to replace wedgewire baskets in the food processing, chemical and mineral processing industries.

Application areas include: Sugar (from cane and beet), lactose, fruit juice, wheat starch, pharmaceuticals, fine coal and other fine minerals.

Sieve Bends

LaserScreen sieve bends with very fine slots are used in starch and pulp mills and for the sizing, dewatering or concentration of other products including food, mineral and chemical slurries, and effluent flows.

LaserScreen sieve bends have very high separation efficiencies of fibrous particles (usually four times higher for corn starch), higher throughput, and are less prone to blinding than conventional wedgewire screens.

Other bes

result in better aeration through greater numbers of finer bubbles and bubble distribution better tailored to the vessel. Aerator application areas include bakers yeast and brewery products.

LaserScreen aerators and tubes are available in thicknesses up to 3mm. The perforations are inherently free of burrs or dross, even on the inside of long tubes.

Support Grids

LaserScreens support grids for ion exchange resins, catalysts and fluidised beds are produced by welding perforated metal sheet to a supporting frame. The resulting flat sheet has high strength, close tolerance on hole dimensions, high open area and a low pressure drop. Example: Water “polishing” at electricity power stations.

Heavy Duty Screens

Examples for high load, high pressure or extremely high wear include recycled plastic extrusion, pulp/paper screens and screens for pigments and powders. Screens are often in special alloys and heavily plated.

Very large “pan filter” screens (for example, for washing alumina powder prior to calcination) are made by combining fine LaserScreens with large-hole punched screens as support.

Micropellet Processing

Petrochemical/plastics industry requirements for smaller bead sizes and higher throughput rates are being met with self-supporting LaserScreens for centrifugal dryers. Typically 0.7 mm thick, these offer almost double the open area of traditional alternatives such as wedgewire.

When drying expandable polystyrene (EPS) beads, LaserScreens provide the dual benefits of increased throughput and reduced operating temperature, lowering the emission of volatile organic compounds.

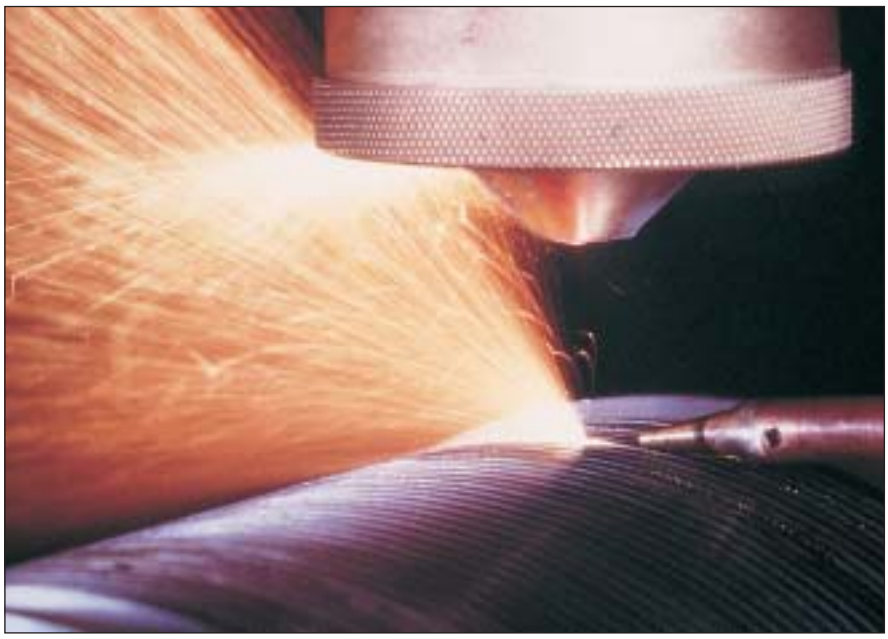
LaserScreens also resist clogging, seal better, have a longer life and are easier to install.

Aerators and Tubes
LaserScreen aerator: diameter 63.5 mm, hole diameter 0.30 mm, wall thickness 1.6 mm.

Welding a heavy duty LaserScreen structure for a mineral processing application.

Other Products

LaserScreens prove superior to other screening materials in applications where separation efficiency, throughput, resistance to wear and damage, and reduction in maintenance costs are important factors. Actionlaser produces a wide range of products custom perforated to various required sizes and shapes. Advantages of the Laser process include flexibility in the types of materials that can be drilled, and the ease in setting up to meet various specifications and drilling patterns. Please contact us with your special requirements.



Heavy Duty Screens
Drilling of 0.2 mm diameter holes in a hardened steel drum with 2.0 mm wall thickness. A recycling application.

STANDARD
LaserScreen Perforations

More information on request

LASER-DRILLED SHORT SLOTS

Material Thickness	Sectional View	Minimum Slot Width
0.20mm		60µm
0.30mm		80µm
0.45mm		100µm
0.55mm		130µm
0.70mm		170µm
0.90mm		220µm

Slot Length: ~1mm
Drilling Pattern: Parallel rows
Slot Orientation: To order

OPEN AREA: Example only
(depends on application)

Material Thickness	Maximum Open Areas	Slot Width
0.20mm	9%	60µm
"	10%	70µm
"	12%	80µm
"	18%	120µm
"	18%	150µm
"	20%	200µm

LASER-DRILLED CIRCULAR HOLES

Material Thickness	Sectional View	Minimum Hole ø
0.20mm		40µm
0.30mm		50µm
0.45mm		60µm
0.55mm		60µm
0.70mm		70µm
0.90mm		90µm
1.20mm		120µm
1.50mm		150µm
3.00mm		265µm

Drilling Pattern: Parallel rows

OPEN AREA: Example only
(depends on application)

Material Thickness	Maximum Open Areas	Hole ø
0.7mm	7.5%	100µm
"	25%	280µm
"	30%	400µm

LASER-CUT SLOTS

Material Thickness	Sectional View	Minimum Slot Width
1.20mm		150µm
1.50mm		170µm
2.00mm		200µm
3.00mm		265µm

Slot Length: To order
Slot Pattern: In-line or staggered

GENERAL

Materials
- Stainless steel
- Non ferrous metals
- Hard coated metals (eg hard chrome)
- Tool steel
- Ceramics
- Hardness - no restrictions

Hole (Slot) Aspect Ratios
Commonly from 1:1 up to 1:10 (deeper than wide) and depending on application.

Maximum Open Areas (%)
Commonly larger than alternative methods. Please ask for quote.

Work Envelope
- Sheet size max. 1000 x 2000 mm
- Perforation max. 800 x 2000 mm
- Tubes max. Ø - 200 mm

Conversion Note
1mm = 0.04 inch
1µm = 0.001 mm

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ActionLaser
Is the exclusive worldwide licensee of technology developed by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Sugar Experiment Stations Board, Australia.

LaserScreens are available worldwide. Your local distributor is:

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