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Comparison guide

Screens for Non-Woven Manufacturing

Key factors to consider when selecting the best tool for your production process

Printing tomorrow.

Select the right tools for your hydro-jetting process

The non-woven materials market is experiencing significant growth, with global production set to almost double by 2030. This is increasing competition, with manufacturers facing tighter margins and higher production costs to stay in business. In such a market, non-woven manufacturers must minimize downtime and optimize processes – but they also need to ensure production is sustainable.

Manufacturing techniques and machinery won't change, but choosing the right tools for the hydro-jetting process—wire mesh, MPS, or a new range of Jade screens—can significantly impact the cost and quality of production. In this guide to screens for non-woven manufacturing, we explain the different types of screens available and compare them based on a range of factors. We explore the initial screen cost, total cost of ownership (TCO), performance, and environmental impact.

While we can't decide the right screen for you, we can provide insights into the best screen solutions available for non-woven man.

Why screens matter in non-woven manufacturing

Non-woven manufacturing involves creating fabric-like materials that aren't woven or knitted but bonded together through various methods, including chemical, mechanical, heat, or solvent treatments. Non-woven materials are increasingly popular for manufacturing a wide range of products, including medical supplies such as surgical masks, industrial materials, and hygiene products like disposable wipes.

Consumers value disposable non-woven fabrics for their versatility, durability, and low cost. They're cheap to produce at a mass scale, but their huge markets make them a profitable product globally, as non-woven materials play a vital part in our world.

To produce non-woven fabrics, a popular production method is hydro-entanglement. The screens used during manufacturing play a vital role during the hydro-jetting process in determining the effectiveness of this entanglement. The screens play an important role in dictating the quality and consistency of the finished product.

Non-woven materials are manufactured and consumed at volume. In the industry, margins are low which means machines and screens must operate for many production runs, which is why their durability is a crucial consideration. The lifespan of the screen – including its quality and durability – affects the frequency of replacements. While screens are simple to replace, any downtime can significantly disrupt production and increase production costs. Maintenance is also a key consideration, with manufacturers keen to find screens and solutions that can perform the maximum number of production cycles.

Non-woven fabric screen choices

Different screen technologies can have a substantial impact on the energy used during production, with the new Jade screen offering significant advantages over traditional screens.

In 2024, non-woven manufacturers have a choice of three screen types and technologies: wire mesh screens, MPS screens, and the newly released Jade:

1. **Wire mesh screens**
   Wire mesh screens are woven from metal wires and then plated with nickel. They are known for their durability and cost-effectiveness. Wire mesh screens are cheap and efficient to produce, but there are limitations in terms of pattern flexibility and maintenance.
2. **MPS screens**
   MPS screens produced by SPGPrints are electroformed and therefore 100% nickel. When compared to wire mesh screens they offer greater stability and durability. Each screen is designed and manufactured with customer specific patterns that enhance the entanglement process and improve product quality and consistency.
3. **Jade screens**
   The newest innovation from SPGPrints, Jade screens are designed to be more sustainable and cost-effective alternatives to wire mesh and currently available MPS screens. Jade screens feature advanced patterns enable non-woven production with a lower water pressure required during manufacturing which can lead to significant energy savings. Jade is designed to be an environmentally friendly alternative without compromising performance, durability, or production quality.

Do you want to know more about Jade? And the advantages it may bring for your production process? Get expert advice or download the Jade brochure here:

→ Download brochure

Why consider an alternative screen?

Each screen technology has its benefits so it's understandable that manufacturers face a difficult decision when selecting screens for non-woven manufacturing. To help drive better decision making we've narrowed this down to three key considerations that are common across all non-woven textile manufacturers:

1. Cost-effectiveness
2. Performance
3. Sustainability

In the following sections, we explore what these elements mean in the non-woven manufacturing process and how each screen technology compares. While manufacturers may be comfortable with the price and performance of current wire mesh screens, alternatives like Jade could deliver a long-lasting impact on production costs, output quality, and sustainability – making switching a sensible choice.

Factor 1

Cost-effectiveness

In an industry where margins are tight and competition is fierce, cost is a primary consideration for manufacturers. The key challenge for manufacturers is finding a balance between budget optimization, while maintaining high-quality and consistent production standards.

Assessing cost-effectiveness is complex, involving initial screen purchase cost, total cost of ownership, ongoing operational expenses, and maintenance all contributing. Here's how each screen technology compares on these crucial aspects of cost-effectiveness.

Initial Cost

Wire mesh screens are generally the least expensive to purchase, making them an attractive option for manufacturers with limited budgets. In comparison, MPS screens will have a higher upfront cost due to their more advanced construction, higher-quality materials, and overall durability. Jade screens, while being the newest and most advanced, have a marginally higher initial cost compared to MPS screens, but the marginally high purchase cost can be offset by sustainability gains and the long-term savings.

Total cost of ownership (TCO)

Total cost of ownership is a calculation that includes not just the initial purchase price but also maintenance costs, downtime, and the lifespan of the screen. While wire mesh screens may initially be cheaper to purchase, their operational lifespan is typically shorter, meaning they require more frequent replacements and maintenance – which can impact TCO. MPS screens offer better longevity and stability to manufacturers, reducing production downtime and maintenance requirements. Jade screens have an advanced design and are manufactured to the highest standards. In addition to longer operational cycles and a reduction in maintenance, lower energy consumption due to lower water pressure contributes to a significantly lower TCO than the other options.

Maintenance and downtime

Manufacturers know that frequent maintenance and unexpected downtime can disrupt production and increase costs. Customers can find production delays frustrating, affecting confidence and future orders. Wire mesh screens are prone to fiber accumulation, which can lead to higher maintenance requirements and more frequent downtime. Manufacturers will often carry a stock of screens, as even short delays can cause major disruptions. MPS screens are more durable and require less frequent maintenance, which is reflected in their higher purchase costs. The Jade ecoscreen has been designed and manufactured to minimize maintenance and downtime through their enhanced durability and efficiency.

Screens used in non-woven manufacturing are production tools, and they will all wear out over time. Manufacturers need to consider more than the purchase price of the screen and understand the total cost of ownership. Maintenance and downtime can do more than impact production and hit profits – they can damage relationships, something it's impossible to put a value on.

Factor 2

Performance

The consistent performance of a screen is essential for meeting production targets and maintaining product quality. When comparing performance in non-woven manufacturing screens, we must consider several aspects, including consistency, efficiency, and durability.

Consistency

Manufacturers must produce millions of products to the precise standards demanded by customers. Consistency and repeatability in production – both in quality and size – are crucial to maintaining customer satisfaction. During production, wire mesh screens can deliver consistent results but they may require more frequent monitoring and adjustments to ensure they're performing. The stable design of MPS screens means they deliver better consistency than MPS screens. The Jade screen provides manufacturers with the highest level of consistency currently available. Producers can have confidence that every batch of non-woven products meets the specified quality standards.

Efficiency

Efficiency is measured in two ways, by the throughput (meters-per-minute) and quality of the final product. To stay profitable, manufacturers must balance the need for rapid production while delivering to the precise specifications demanded by customers. Wire mesh screens provide reliable performance, but they may not achieve the same efficiency levels – in both speed and quality – as an MPS or Jade screen. The patterned design used on MPS screens improves efficiency and increases fiber entanglement, which can result in more durable and higher-quality products. Jade screens take efficiency a step further, delivering the quality and speed of MPS screens while reducing water pressure requirements resulting in lower energy consumption and higher throughput.

Durability

Wire mesh screens, while efficient and cheaper to produce than alternatives, are susceptible to damage and fiber accumulation, meaning they wear out sooner. They're relatively simple to replace, but the cost, inconvenience, and impact must be considered. MPS screens have a hardwearing electroformed construction which provides greater durability and damage resistance than wire mesh screens. The Jade screens is manufactured to provide the highest level of durability, withstanding high-pressure production environments. A Jade screen can operate for the longest possible time without interruption.

Wire mesh screens have established themselves as the entry-level choice, but for businesses that want to deliver more for their customers should consider Jade screens as the future for non-woven manufacturing technologies.

Factor 3

Environmental Impact

Most non-woven materials are, by their nature, unsustainable – but they are vital. While producers have no control over how their products are used, they can increase the sustainability of production. Customers are looking for suppliers to become more sustainable, minimizing the environmental impact of production. Companies that can demonstrate they're getting serious about sustainability could establish a competitive advantage. As well as being better for the planet, more efficient and environmentally friendly production can increase profits, too.

Material sustainability

The materials screens are manufactured from directly influence their sustainability. Wire mesh screens are made from metal wires, which can be recycled in an energy-intensive process. In comparison, MPS screens are electroformed from nickel which is more durable – ensuring a longer lifespan and reducing the need for replacement. They are also easier to recycle as they are made from a single material. The new range of Jade screens is designed and engineered with sustainability in mind, reducing the overall environmental impact throughout the whole lifecycle. They use high-quality nickel that is durable, delivering a longer production lifetime, and are 100% recyclable and reusable at the end of life.

Waste reduction

Screens are disposable items that regularly need to be replaced. Each new screen needs to be produced, purchased, transported, and fitted, a process that generates a significant carbon footprint. As we've explored before, wire mesh screens require more frequent replacements than alternatives and can become damaged and distorted due to fiber accumulation. In contrast, MPS and Jade screens have greater durability and longevity, which generates less waste over time.

Energy consumption

Manufacturers have made huge strides in improving sustainability, with almost all water used during the non-woven production process recycled and reused. However, energy usage remains a significant factor in the environmental impact of non-woven manufacturing – and cutting it is a priority. Wire mesh screens require higher water pressure during production, leading to increased energy consumption. MPS screens use a patterned design which enhances fiber entanglement and reduces water usage, but neither can approach the sustainability of Jade. The latest Jade screens offer the greatest energy savings by reducing water pressure requirements, thereby lowering pump energy and overall energy consumption by up to 10%. This can have a significant and long-lasting reduction in energy usage, cutting bills for all manufacturers.

Performance is a priority today, but sustainability will likely become the most important factor in current and future years. Innovations that lower energy consumption and waste production contribute to a greener manufacturing process – making companies that adopt them more attractive than those that stick to traditional methods.

Hydro-jetting screen types at a glance

	Wire mesh	MPS	Jade
Cost-effectiveness	++	++	+++
Performance	++	++	++
Sustainability	+	++	+++

Selecting the right non-woven screen

Selecting the right screen for non-woven manufacturing is crucial for optimizing production efficiency, reducing costs and meeting sustainability goals. Companies face a choice between sticking with tried and tested wire mesh and MPS screens or experimenting with environmentally friendly and cost-effective Jade screens.

As well as considering production quality and efficiency, manufacturers should consider sustainability. Shifting to the Jade screen can enable you to build a more sustainable and profitable businesses – establishing a competitive advantage in the market. Jade is robust, reliable and high-quality non-woven material production that's kinder to the planet.

If you want to review the efficiency of your current non-woven production process and explore steps to become more sustainable, our experts are here to help.

→ Get expert advice

About SPGPrints

SPGPrints is the global leading provider of integrated solutions for rotary screen printing in the textile, label and industrial markets and has a leading position in digital printing. With offices around the world, SPGPrints is able to help customers on site and provide quick solutions with stocks in various locations. Our experts gladly use their long-term experience in the printing industry to help all kinds of companies. Together, we keep improving the printing processes to not only raise customer satisfaction, but also create a better world by developing a more sustainable printing process.