

SYNTEGON

PROCESSING & PACKAGING

Energy bars on the rise.

Latest insights on processing and packaging
a demanding product.



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Executive Summary

So-called “energy bars”, i. e. products with a health and nutritional benefit, are one of the fastest-growing segments within the snack bar market. **The global energy bar market is projected to reach USD 3,608.09 million in 2026, registering a CAGR of 3.32% during the forecast period 2021–2026.¹** Health-conscious consumers are the main growth driver, as they are increasingly on the lookout for all-natural, sustainable products that support their well-being. Especially in times of a global pandemic, with people all around the globe having more time for themselves, a great share of consumers is rethinking their approach to health, nutrition and sustainability. Bar producers are following suit with expanded portfolios that boost the traditional bar market – with many varieties of shapes, tastes and packaging styles.

¹ Global Energy Bar Market (2021) – Mordor Intelligence

Manufacturers of all sizes – from start-ups and small enterprises to large companies and multinational corporations – are benefitting from the current trend. However, the production of health and nutrition bars differs from conventional chocolate and snack bar production in a number of ways, which has a significant impact on the manufacturing, handling and packaging process:

- ❑ Bars with natural ingredients can spoil more easily; consequently, health and nutrition bar packaging needs to offer better protection than for conventional bars.
- ❑ Using natural ingredients like nuts and dried fruits means product sizes can vary from bar to bar, which poses a particular challenge for product feeding and handling.
- ❑ Allergen-free products are subject to stringent hygienic standards. Combined with their oftentimes sticky consistency, this calls for extensive cleaning and maintenance processes.

In addition, retailers and consumers have certain expectations of their own, which cannot be ignored:

- ❑ Customers expect a broad range of flavors and ingredients.
- ❑ The bars should have as long a shelf life as possible without containing preservatives.
- ❑ The packaging not only needs to be visually appealing, but also suitable for transport and shelf displays.
- ❑ The growing interest in sustainable solutions should be taken into account.

Health and nutrition bar manufactures are expected to satisfy all of these requirements. Consequently, several aspects need to be considered when selecting the right processing and packaging technologies. Depending on the manufacturer's starting point, company size and existing equipment, a number of automation solutions are worth considering.



LEVEL 1

For start-ups and smaller companies, the initial goal is to achieve a consistent quality standard and produce minimum quantities to establish a foothold on the market. A semi-automated entry-level solution is likely the best choice at this point.

- ❑ Automated mixing and forming ensures consistent product quality.
- ❑ Automated primary packaging ensures tightly sealed packs, for high product safety and a long shelf life.



LEVEL 2

Small but established manufacturers and medium-sized enterprises, who want to add health and nutrition bars to their portfolio or produce larger batches, require standardized and fully automated systems. Here, one important aspect is ensuring a maximum degree of flexibility, so that they can respond to new trends and market growth.

- ❑ In addition to Level 1, it makes sense to automate product infeed, as well as secondary and tertiary packaging.
- ❑ Heat sealing and Modified Atmosphere Packaging (MAP) can further extend product shelf life.
- ❑ Cartoning and case packing machines should enable fast and easy format changeovers between different products.
- ❑ Easy access to the individual machines and tool-free format changeovers simplify maintenance and retrofitting.



LEVEL 3

Established medium-sized enterprises and large corporations need fully automated and seamlessly integrated solutions that allow them to quickly retrofit or upgrade their production capacities. At the same time, they require maximum overall equipment effectiveness in order to achieve their growth targets.

- ❑ Gentle product handling, e.g. via linear motors, reduces debris build-ups in the machine.
- ❑ All process steps are mutually harmonized and fully automated, so that manual interventions are almost entirely unnecessary.
- ❑ A simple, intuitive interface makes the machines easy to operate – a significant advantage in times of skills shortages.
- ❑ Multi leg systems with product buffers and refeed belts maximize machine efficiency as a whole.

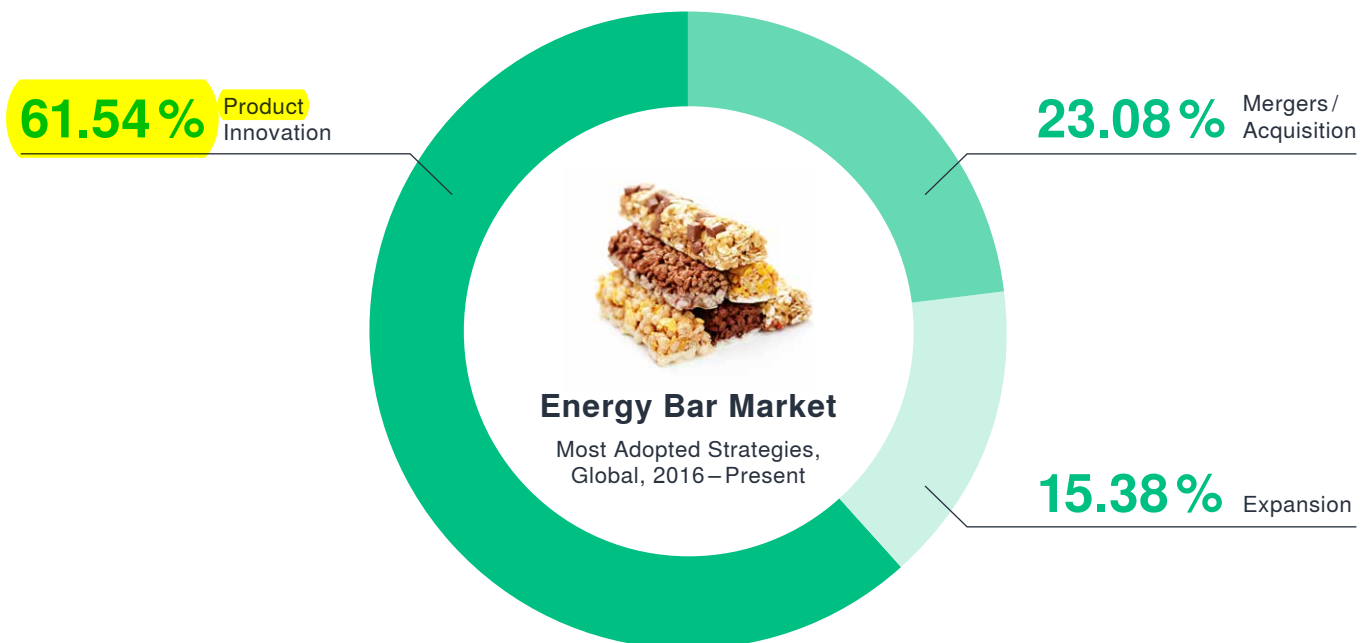
Introduction.

THE WORLD OF ENERGY BARS AT A GLANCE

The health and nutrition bar market has been seeing various trends over the last few years, which all reflect current demands that hold further market opportunities. The increased demand for convenient on-the-go food is mainly driving energy bar growth around the world. Consumers in general are paying a lot of attention to their food's ingredients, their quality and the amount of food they are consuming. Consequently, they are focusing on diet content, smaller portions and healthier ingredients.

Major market players of the bar industry are following various strategies to maintain and grow their share. Most common are product innovations, mergers and acquisitions, and geographical expansions, to establish a strong consumer base

and to meet consumer needs.² Nevertheless, among the many strategical options, market players prefer product innovations, which hold a share of 61.54% in the mix of most adopted strategies.³



Source: Global Energy Bar Market (2021) – Mordor Intelligence

CONSUMER NEEDS ARE WHAT COUNTS

The reasons consumers opt for healthy snacking are numerous: it improves overall health, curbs cravings, fights weight gain, regulates mood, boosts brain power, and gives the energy needed to keep going all day.⁴ In addition, today's consumers are more educated about the impact of dietary choices on their own health, on environmental sustainability, sourcing, and social responsibility. As a consequence, they are paying closer attention to food ingredients, hence the rising "clean-label" claims on products that also accelerate market growth in the bar segment. In addition, product launches with various label claims

such as "no artificial additive," "non-GMO," and "reduced sugar" have been reflecting that awareness and silently benefitting health-conscious customers over years.

In this context, consumers increasingly opt for instant energy snacks without any preparation time. Tossed into our gym bag, handbag or laptop bag, bars are easy store, easy to eat and offer a quick and healthy burst of energy. From a manufacturing perspective, managing different types of bars requires flexibility in terms of time management, processing and packaging machinery.

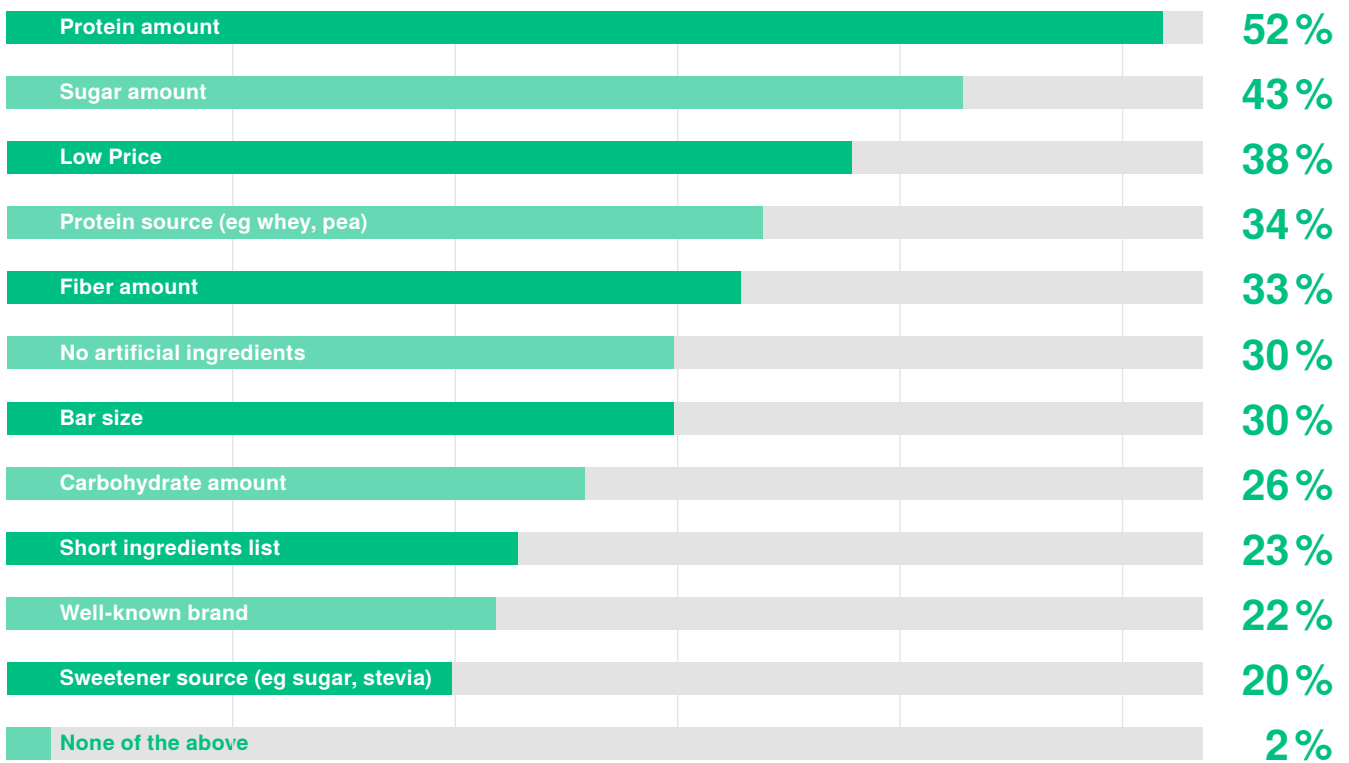
² Global Energy Bar Market (2021) – Mordor Intelligence

³ Global Energy Bar Market (2021) – Mordor Intelligence

⁴ Global Energy Bar Market (2021) – Mordor Intelligence

Bar attributes of interest

Consumer criteria when choosing snack, nutrition or performance bars

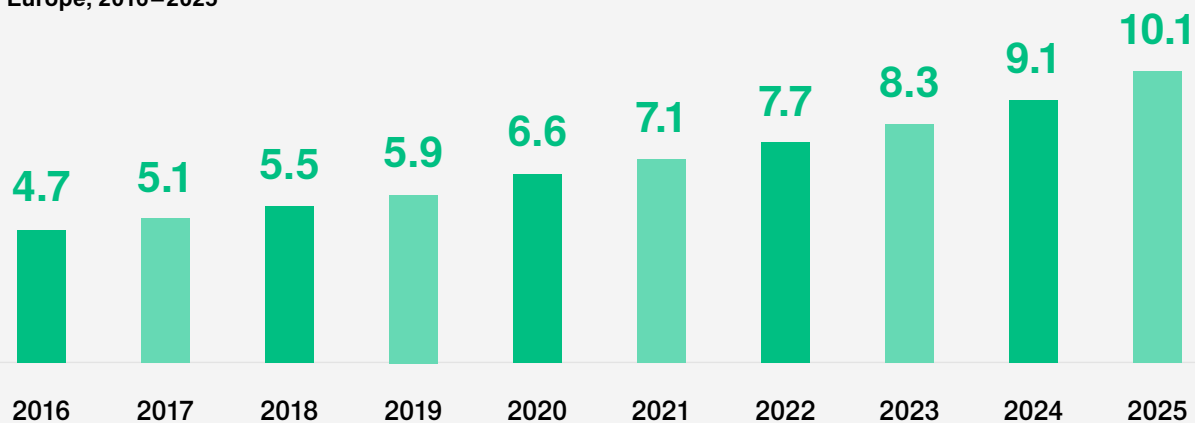


Source: Lightspeed / Mintel

The health and nutrition bar market is currently seeing various trends, which all reflect current demands that hold further market opportunities. “Free-from” or “clean label” products, as well as plant-based ingredients are on the rise. “Free-from” products are dedicated products without allergy causing ingredients, such as gluten or lactose. In addition, the strong trend for vegan diets and the use of organic ingredients are impacting the energy bar market as well. A survey conducted

by supermarket chain Veganz in 2020 reveals that the vegan population in the European region has doubled to 2.6 million in 2020 from 1.3 million, which represents around 3.2% of the European population. This development reflects huge market potential for plant-based energy bars. So does the plant-based food and beverages market, which is growing at a rate of over 8% during the forecast period 2016–2021 in Europe.

Plant Based Food and Beverages Market in USD billion, Europe, 2016–2025



Source: Global Energy Bar Market (2021) – Mordor Intelligence

GROWING ENVIRONMENTAL AWARENESS

Today, our environmental awareness, especially with regard to plastic waste, is higher than ever: newspaper headlines are dominated by photographs of garbage patches floating on the ocean surface, schoolchildren going on strike for climate protection, and UN reports on the rapid loss of biodiversity. It goes without saying that plastic packaging is part of the waste crisis. Yet there are currently very few sustainable alternatives that offer the same level of product safety and protection for perishable products.

Educated consumers are striving to reduce the amount of waste that they personally produce, by opting for packaging made from recyclable materials. Accordingly, it is important for manufacturers to focus on sustainability as a selling point for their product packaging, and to consider alternatives to conventional packaging materials. These include mono-material films, paper-based packaging and bioplastics.

STRINGENT PRODUCT SAFETY REQUIREMENTS

In addition, legal regulations significantly shape bar manufacturers' scope of action. The requirements vary from country to country: in the USA, for example, the Food Safety Modernization Act (FSMA) stipulates that producers bear the responsibility for avoiding contamination and foodborne illnesses; the focus is on preventing problems, rather than responding to them. Accordingly, manufacturers can decide for themselves which specific technical measures to take in order to ensure product safety. When it comes to processing and packaging technologies, key aspects include the user friendliness, maintenance friendliness, production safety, and cleanability of the machinery.⁵

KEEPING UP THE PRODUCTION

In order to meet the growing demand for products for "clean-labels" or "free-from" products, manufacturers have to bear a number of aspects in mind. In many cases, a single line is used for a diverse range of products, which have different ingredients and sizes, and are packaged differently. Consequently, format flexibility and the ability to easily yet thoroughly clean relevant machine components after every format or recipe changeover are essential. In addition, due to the current skills shortage, the packaging sector is increasingly focusing on automation and operator support. In this regard, the COVID-19 pandemic is also playing a pivotal role.

IMPACT OF COVID-19

The global COVID-19 pandemic has lent new importance to the perennial issue of hygiene. In order to ensure the safety of operators and consumers alike, automation has proven to be indispensable: When processes are run automatically instead of manually, there is less direct contact between the operator and product – and less risk of contamination.

As a result, there continues to be a high demand for innovative, automated handling and packaging solutions in the energy bar industry, even more so as those products weren't affected by the pandemic. Although lockdown instructions led to bakery products, dairy products, and snacks to be kept back by supermarkets in favour of staples, energy bar sales benefitted from consumers who were eager to purchase health and wellness products.⁶

THE WHITEPAPER

The rapidly evolving market for health bars entails a number of challenges for manufacturers. This whitepaper provides an overview of the various requirements in practice, and uses concrete examples to highlight the most important aspects of production and packaging for health and nutrition bars. In addition, it proposes a range of potential solutions with regard to technical implementation.

THE GUIDE IS INTENDED FOR THE FOLLOWING TARGET GROUPS

1. Start-ups and small companies with innovative new product ideas, who are new to automated processing and packaging
2. Small to medium-sized enterprises that have already taken their first steps toward automation with other products, and now wish to expand their production
3. Medium-sized enterprises and large companies that wish to adapt their production to the requirements for health bars, so as to expand their position in this market segment

THE WHITE PAPER ADDRESSES THE FOLLOWING QUESTIONS

- ❑ What unique challenges does the production and packaging of energy bars pose?
- ❑ How can the product stand out from the competition on the shelf?
- ❑ What challenges arise in terms of processing and packaging – for start-ups, medium-sized enterprises and large companies?
- ❑ What specific solutions and automation levels does Syntegon Technology offer for handling and packaging?

⁵ <https://www.foodsafety magazine.com/products/fsma-infographic-by-pmmi/>

⁶ Global Energy Bar Market (2021) – Mordor Intelligence

Challenges of production and packaging.

NOT ALL BARS ARE CREATED EQUALLY

The world of snack bars is diverse: from traditional chocolate bars for on-the-go consumption to protein bars for athletes – there are alternatives for every taste and occasion. Organic, clean label and allergen-free products are very much in demand, and the snack bar market is no exception.

However, due to the use of natural ingredients, such as cereals, nuts or honey, the texture and structure of the individual bars poses considerable challenges in comparison to conventional snack bars. As a consequence, energy bars heavily impact manufacturing, handling and packaging processes:

1. Mass slab production needs to meet special production requirements
2. Sticky, fragile and differently sized bars call for flexible and reliable forming and feeding, as well as gentle handling of several products on one packaging line
3. Fast cleaning of machine components and compliance with high hygiene standards in hypo-allergenic settings
4. Tightly sealed packs to protect the highly perishable ingredients: Natural bars with little or no preservatives spoil more easily. Packaging must therefore protect the healthy alternatives even better than conventional products.

Despite those challenges, this market segment offers good business opportunities and bar manufacturers are eager to provide products that do not compromise on taste, consistency, appearance or shelf life.

SPECIAL INGREDIENTS CALL FOR SPECIAL HANDLING

In terms of mixing and rolling out the bar mass slab, processing technology needs to be flexible and easy to adapt depending on the various recipes. Intelligent recipe management ensures a high degree of flexibility in the production of different bar types. The processing and packaging technology has to meet the specific needs of the sticky, delicate and often differently sized bars whilst keeping product waste to a minimum. Since health and nutrition bars, e.g. those containing nuts or dried fruits, tend to be fragile, gentle product handling is essential throughout the processing and packaging process. This prevents the bars from breaking as well as reducing both waste and debris build-ups.

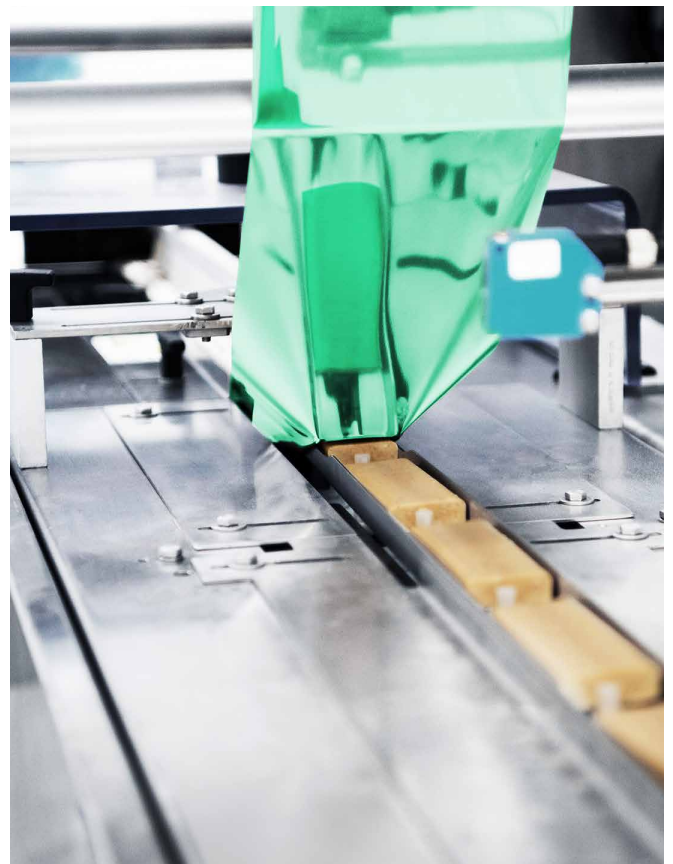
HIGH STANDARDS FOR CLEANING PROCESSES

When it comes to hygiene, these bars require special attention: especially for allergens like nuts, gluten and milk, manufacturers must rule out cross-contaminations. However, machines that process sticky bars and/or products containing nuts are especially prone to debris build-up. Consequently, simple, fast and reliable cleaning processes are essential to maintaining

quality and productivity. To some extent, prevention in the form of gentle product transport throughout the production process can help, as well as integrated belt-cleaning systems to reduce downtimes. Any product residue on the machines should be clearly visible and easily accessible for cleaning purposes. Being able to disassemble belts and other components quickly and without tools enables efficient and thorough cleaning.

SEALING TECHNOLOGIES DELIVER PRODUCT PROTECTION

To ensure that health bars stay fresh as long as possible, they need hermetic packaging – especially for natural health bars with few or no preservatives. A range of sealing and modified atmosphere packaging technologies are used to deliver fresh and safely packaged products with a long shelf life.



Heat sealing offers excellent results with prolonged sealing times.

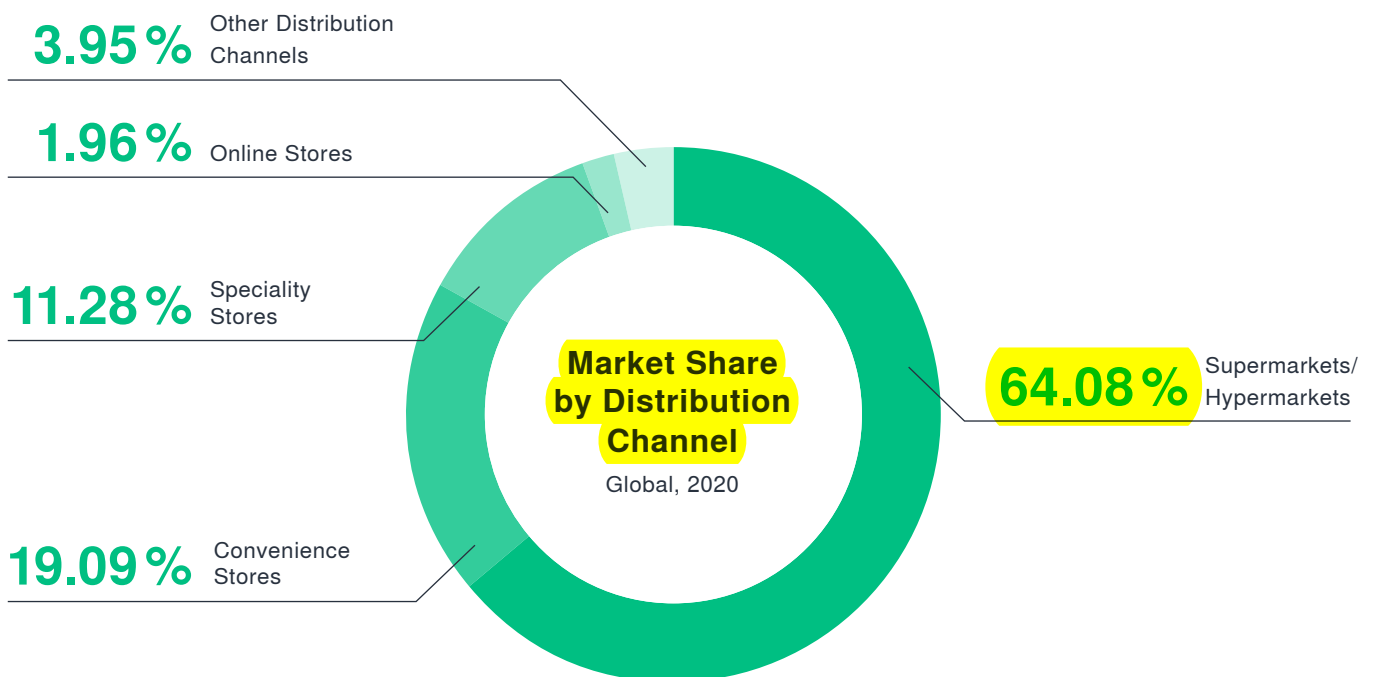
On the shelf.

DISTRIBUTION CHANNELS FOR ENERGY BARS

The consumer demand for healthy on-the-go snacks has been the key driver in the sales of energy bars. The evolving lifestyles of Americans and Europeans contribute to an increased consumption of this kind of bars. Especially the 50-plus generation and young millennials are steadily growing consumer groups.⁷ Though underestimated by many, millennials' purchasing power is also on the rise. The oldest millennials are now in their mid-30s and hold positions of responsibility. As a result, their incomes are growing, while their consumption patterns remain the same. They call for products that express their personality and their way of life.

Standing out on the shelf and grabbing customers' attention is essential to commercial success. The supermarkets/hypermarkets hold a market share of 64.08% among the major distribution channels. They provide a super-sized shopping experience

with suitable displays and assortments of indulgent snacking products. The proximity factor of these channels, especially in bigger cities and metropolitan areas, gives them an added advantage of influencing the snacking habits of consumers.⁸



Source: Global Energy Bar Market (2021) – Mordor Intelligence

As in other categories as well, e-commerce platforms are becoming more popular. Especially in the snack bar segment, online sales doubled in 2020. Consumer changed their shopping behavior during the pandemic from single-serve options to bulk purchases of multipacks. For snack bars, this is very much an emerging channel and represents a big opportunity.⁹

Commenting on this online surge at a recent FoodNavigator webinar on the industry, Karen Howland from CircleUp argued that consumers shopping online are more easily able to search for bars by trait to “find the brands targeting specific needs and attributes that they’re focused on,” allowing them to cut through the clutter and confusion that one is normally presented with by hundreds of bars at a typical supermarket.¹⁰

⁷ Global Energy Bar Market (2021) – Mordor Intelligence

⁸ Global Energy Bar Market (2021) – Mordor Intelligence

⁹ RaboResearch – Talking Points: Peak Bar? May 2021

¹⁰ Snack Bar trends: Raising the bar in a crowded market

On the market, health bar manufacturers should thus position their products in a way that catches consumers' attention both online and offline. In this regard, four aspects should be kept in mind:

1. A broad range of products with several types and flavors
2. Long shelf life, despite perishable ingredients and fewer preservatives
3. An eye-catching pack style and attractive yet informative packaging
4. Use of sustainable and resource-efficient packaging materials

VARIETY

The right health and energy bar for every lifestyle: the huge variety of products poses several challenges for processing and packaging technologies. The current trend is toward consumers individually combining their favorite bars in "variety packs." They can choose the types and quantities of bars based on the flavor or ingredients, e.g. post-workout protein bars, or energy bars that offer easy-to-absorb carbohydrates during endurance training. In terms of processing, the bar mass mixing and forming technology must be able to handle a broad and changing variety of bars. Consequently, the manufacturing and packaging processes must support rapid format and film changeovers. This calls for a high degree of flexibility, modularity, and access to the machine components – not just for primary packaging, but also for secondary and end-of-line packaging.

LONG SHELF LIFE IN STORES

For health and nutrition bars, using natural ingredients without preservatives is a top priority. Processing and packaging technology is especially important for product quality and shelf life. Hygienic design aspects play a particularly significant role in health bar production. The machines can be cleaned easily, reliably and quickly. Modified Atmosphere Packaging (MAP) technologies, which involve treating the product with special gases during packaging, guarantee an extended shelf life. Vacuum technology offers a viable alternative for products that are incompatible with gassing.

Hermetically sealed packages protect products from oxidation due to oxygen exposure, while also extending their shelf life. In this regard, heat sealing with an extended sealing time yields outstanding results. The integrity of the seals depends on the film material, sealing technology and overall equipment effectiveness. Professional consulting services and film tests pay off when choosing the right sealing technology and packaging material.

POINT OF SALE/SHELF APPEAL

The different target groups' shopping habits and retail requirements are another important aspect. The packaging's on-shelf visibility and appeal have a major impact on purchasing decisions. This is equally true for primary and secondary packaging: premium products, for example, are often packed in smaller box formats. In addition, decorative films with a unique look and feel can help position the product in the premium segment.

In stores, health bars can be found in various locations. They are often sold at the checkout counter in drugstores and fitness studios, where consumers can take individual bars out of the display cases. On supermarket shelves, health and energy bars are sold in folding boxes containing a fixed number of units.

Accordingly, in terms of secondary and end-of-line packaging, the goal is not only to ensure product safety during transport, but also to make sure they stand out on the shelf – no matter where they are displayed. As a result, manufacturers must be able to produce multiple pack styles and formats to meet retailer demands.



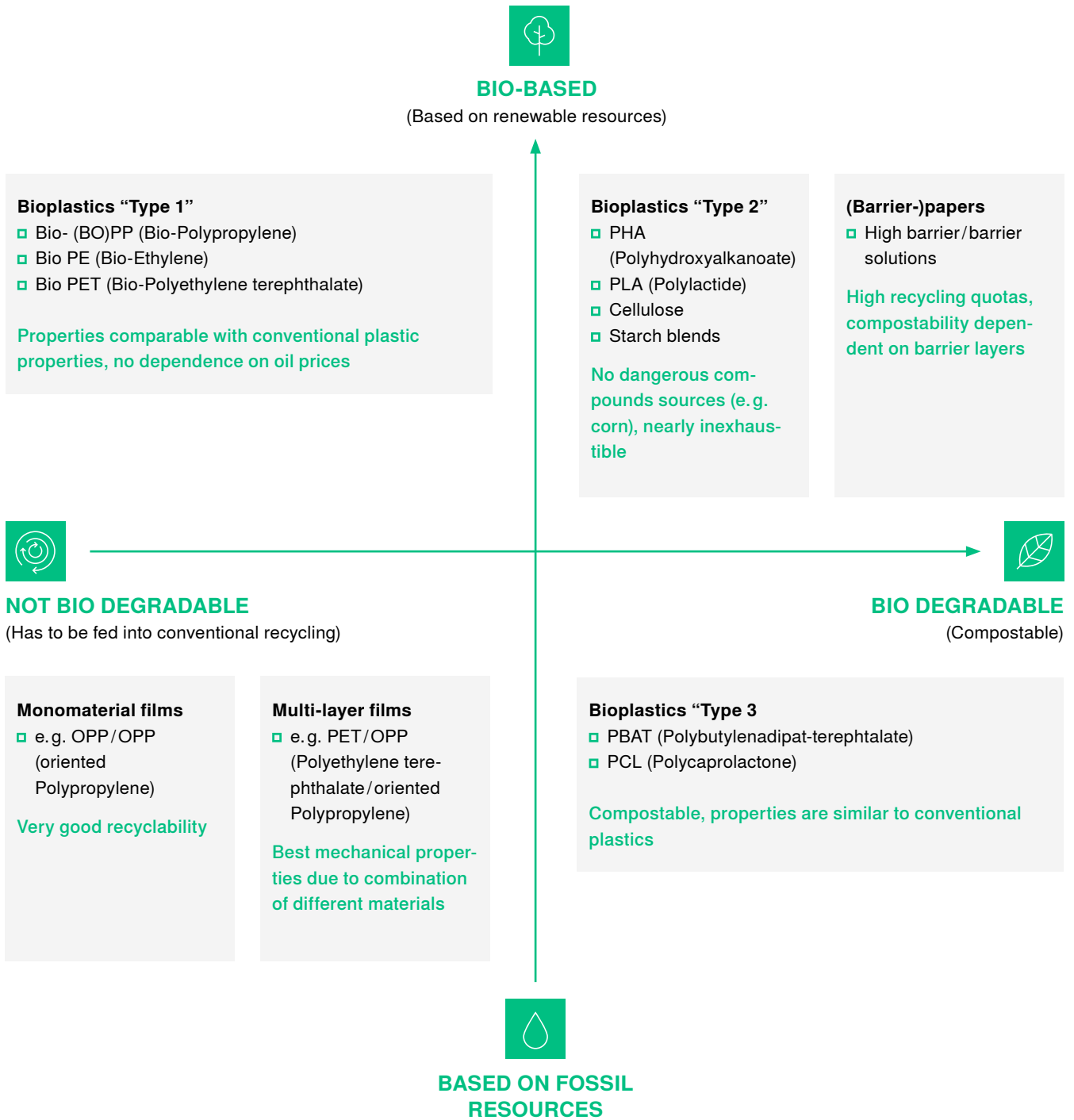
Consumers are looking for the right health and energy bar for their every lifestyle.

KEEPING SUSTAINABILITY IN MIND

Confectionery and film packaging go together like a horse and carriage – or rather they used to. Times are changing, and so does the material that bars are wrapped in. Today, consumer goods companies are looking for more sustainable materials and become more environmentally aware. In addition, retail outlets are increasingly seeking to minimize packaging waste. Bar manufacturers are hence eager to integrate paper based, mono-material or bioplastic flow-wraps into their packaging portfolio. But what type of product is designed for paper packaging, mono-materials or bioplastics? Answering these challenging questions and protecting the products requires dedicated teamwork all across the food value chain.

As a systems provider, Syntegon Technology offers everything from primary and secondary packaging to transport packaging, ensuring a holistic, sustainable approach to customer's packaging requirements. The graphics below showcase a range of packaging materials and their inherent properties.

MATERIALS USED FOR FLEXIBLE FOOD PACKAGING



BIOPLASTICS
Bioplastics can be biodegradable, bio-based or both. They can be based on renewable resources like starch or corn and/or even be compostable at home.

MONOMATERIAL FILMS
Although monomaterial is based on fossil resources and are not biodegradable, recycling is much easier than for laminate counterparts. That’s why we are working on new technologies to ensure best quality and consistent high speed capacities.

MULTI-LAYERS FILMS
There is a big variety of possible material combinations. To make these laminates as resource-efficient as possible, the goal is to use as little plastic as possible.

Prefix ‘bio’ can refer to different functionalities (biodegradable, biocompatible etc.) or processing (biological or biotechnological processes). [EN 16575: 2014]



Automation level 1: Start-ups and small companies.

OVERVIEW: FIRST STEPS TOWARD AUTOMATION

Start-ups and small companies have to consider a number of questions before attempting to establish themselves on the market. One of them is: how can I satisfy retailers' and consumers' demands? Retail demands quality, long shelf life, and minimum quantities; these necessitate automated processes and tightly packaged products.



STATUS QUO: POISED FOR SUCCESS

As a rule, start-ups are initially small: with limited financial resources but a great deal of passion. Their founders constantly refine the product until it is market-ready. After painstaking research, the recipe is complete, and it is time for the bar to go to market. But it takes more than lovingly handcrafted health bars to satisfy consumers and distributors; automated manufacturing and packaging processes are necessary, so as to produce the new product in large batches and in compliance with food safety regulations. In short, the days of experimenting in the kitchen are long gone.

GOAL: PROFESSIONALIZING PRODUCTION

For young entrepreneurs, the successful leap to the market, finding their first buyers, and gradually expanding production are the top goals. Achieving them involves delivering a product that is appealing and safe; both government authorities and retail define stringent standards for food safety that must be adhered to.

Experience shows that it is particularly important for start-ups to prioritize product safety from the outset. In this regard, processing and packaging technology is crucial. Flow wrapping is a good choice for primary packaging. Flow wrapped packs protect the product from environmental influences and are comparatively inexpensive. They keep the bars fresh for longer, which is indispensable for their shelf life in stores. Packs that are not tightly sealed and the risk of product spoilage can seriously shake consumers' faith in the product and retail's faith in the manufacturer. In short: defective primary packaging harms both the manufacturer's image and future sales.

In addition, flow wrapped packs are a good choice in terms of brand recognition; the choice of film material and pack design can convey the brand's values and the product's qualities.

WHAT SHOULD I KEEP IN MIND?

Sooner or later, all start-ups will need automated production and packaging processes. But when and where should they start? It is advisable to automate particularly labor-intensive and safety-relevant production steps, so as to deliver large batch sizes with consistently high quality.

In this regard, automated processing and primary packaging is a particularly good choice:

- Automated mixing and forming ensures hygienic products with homogeneously distributed ingredients. During this phase, there is no direct human contact with the product, reducing the risk of contamination.
- Automated primary packaging ensures reliable and reproducible results, as well as tightly sealed packaging that meets distributors' criteria for shelf life.

Here the focus is on product safety and appearance, which is why many start-ups initially opt for automated primary packaging. The only snag: in addition to the right packaging machine, they need to find a film that is suitable for a tightly sealed pack. For especially delicate health and nutrition bars, the packaging cannot have any leaky seams that could compromise product quality.

WHAT DO I NEED?

Syntegon Technology offers young companies advice and expertise on getting started with automation. As leading providers of processing and packaging technologies, Syntegon works with its customers to jointly find the optimal solution for a broad range of production requirements. In our experience, many start-ups opt for semi-automation with a broad format range as an initial solution. In this scenario, production steps like placing the product in the infeed chain for the flow wrap packaging machine or cartoning are still done manually. For start-ups, we recommend producing and shaping the health bar mass on a batch-by-batch basis.

WHAT ARE THE BENEFITS?

Entry-level machines can package up to 150 bars per minute, delivering significantly higher output than manual packaging. In addition, production staff have less direct contact with the product, which helps ensure product safety. Thanks to cold sealing, every pack has a minimum tightness that satisfies the stringent product safety and hygienic standards in retail.

More and more manufacturers are now using bio-based films or other recyclable materials. We are happy to advise our customers when it comes to selecting the optimal packaging material. Our experts conduct extensive testing so that customers can select their preferred material and sealing technology with complete confidence.



Flow wrapping is ideal for bars: it is inexpensive, protects the product effectively and is popular with consumers.



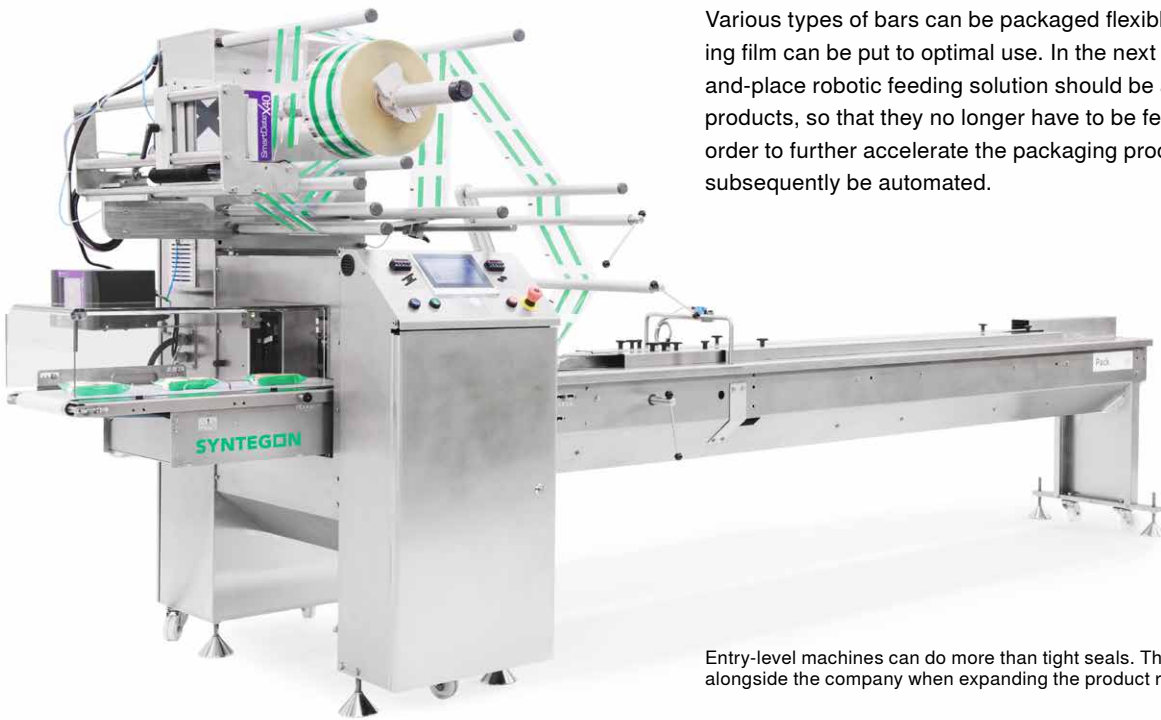
Automating the mixing and bar forming process guarantees hygienic products with evenly distributed ingredients.



For start-ups, it is recommended to start manufacturing and forming the bar mass in batches.

WHAT CAN I DO IN FUTURE?

Entry-level machines can do more than tight seals. When it comes to the first expansion of the product range, e.g. new flavors or formats, the machine can grow alongside your company. Various types of bars can be packaged flexibly, and the packaging film can be put to optimal use. In the next step, a simple pick-and-place robotic feeding solution should be added for suitable products, so that they no longer have to be fed in manually. In order to further accelerate the packaging process, cartoning can subsequently be automated.



Entry-level machines can do more than tight seals. The flow wrapper grows alongside the company when expanding the product range.

HOW HAVE OTHER COMPANIES DONE IT?



“We love the consistency of the machine. It produces the perfect seal we need every time. The wave is coming and we’re out there with our surfboard.”

Jason Wright, co-founder and CEO of Wilde Snacks

EXAMPLE WILDE SNACKS: A START-UP WITH INNOVATIVE MEAT SNACK BARS

The start-up Wilde Snacks, based in Boulder, Colorado, USA, offers consumers a new and unique product: a slow-baked, high-protein meat snack bar. The idea of founding Wilde Snacks came in late 2013, and the company took its first steps toward automation two years later. For Wilde, manufacturing the product in bar form and in a package that promoted brand recognition was an absolute must from the beginning. The founders placed great value on a visually appealing and reliable flow wrapped pack that would stand out from the crowd on supermarket shelves.

By choosing the Pack 101 flow wrapper, the young company took its first step toward automation, and laid the groundwork for future growth. “We love the consistency of the machine. It produces the perfect seal we need every time. The wave is coming and we’re out there with our surfboard,” says Jason Wright, co-founder and CEO of Wilde Snacks.

FIND OUT
MORE HERE!





Automation level 2: Small and medium-sized manufacturers.

OVERVIEW: PAVING THE WAY FOR GROWTH

Capitalizing on market opportunities and quickly responding to trends: these aspects are particularly important to smaller manufacturers and innovative, medium-sized snack bar manufacturers. Accordingly, they invest in further automation so as to boost their capacity, penetrate new market segments, or meet the growing demand for a product already in their portfolio.



STATUS QUO: GROWING DEMAND, BUT INSUFFICIENT PRODUCTION CAPACITY

Especially for young and innovative companies, who grow quickly and, in many cases, cannot realistically predict how their production needs will develop, expanding their production and packaging facilities is an important decision. In comparison to start-ups, the output is usually several times higher.

GOAL: EXPANDING PRODUCTION, BOOSTING FLEXIBILITY

What is called for here is a future-ready production and packaging system that offers a high degree of automation and high efficiency, together with ease of operation.

These companies need a system that is specifically tailored to the production and packaging of health and nutrition bars. In addition to suitable output, the system has to deliver maximum flexibility, allowing it to accommodate a broad range of products

and packaging formats. At this point it is important to invest in reliable and future-ready technologies that, on the one hand, are easy to operate and clean, and on the other, offer excellent resource efficiency.



Being able to produce bars continuously boosts process safety and delivers high quality consistently.



Fragile bars require particularly gentle handling in order to minimize breakage and product waste.

WHAT SHOULD I KEEP IN MIND?

In addition to increased output, the characteristics of health bars are a key consideration. In order to boost output, continuous production is indispensable. This ensures a high degree of process reliability and consistent product quality alike. Delicate health and nutrition bars require especially gentle product handling, so as to minimize product waste. The product rows are taken over from processing seamlessly and continuously distributed to the packaging machines. Any fluctuations are compensated for with the aid of short-term product buffers. Since these bars often vary in size and shape, the packaging system has to be format flexible. In addition, the bars are often very sticky and/or contain allergens; here the focus is on efficient cleaning, as product safety is a top priority.

In addition to primary packaging in flow wrapped packs, the choice of secondary packaging should not be neglected. On the one hand, retailers often determine the size of the carton; on the other, carton design is a major success factor in the battle for attention on supermarket shelves. A number of different formats must be provided for in-store sales and online sales: variety packs; folding boxes in different sizes; and display boxes that consumers can directly take individual bars from. This also means that the cartoning machine has to be able to produce a range of formats and enable fast changeovers.

WHAT DO I NEED?

Unlike with start-ups, here we are no longer concerned with the automation of select production processes. Instead, a fully automated system for dosing and mixing the ingredients, shaping the bars, and transporting them to primary, secondary and end-of-line packaging is a sound choice.

Output increases thanks to the automation of processing and packaging. Since the bars are no longer manually produced or fed into the machinery – and operators no longer have to touch every bar – quality is also improved. Downtime for cleaning, maintenance and format changeovers is reduced to a minimum. Accordingly, production staff can operate and maintain the machines with only basic training and largely without tools.

The growing demands for performance, flexibility and quality chiefly determine the choice of technology.



The product rows are taken over seamlessly and distributed to the packaging machines.

In order to ensure long shelf life in supermarkets, a range of film types and corresponding sealing technologies should be considered. In terms of cartoning and end-of-line packaging solutions, fast and easy format changeovers are a good aspect to focus on.

In this phase of development, manufacturers would do well to seek expert advice regarding future-ready solutions to central questions: What are the optimal technologies to match my products and goals? How much production staff do I need? How should I design the production line? What will the next expansion stage look like, and how can I start preparing for it today? Companies that address these and similar questions early on will profit from their decisions and investments in the long run.



Process and packaging automation eliminates manual feeding: production staff no longer needs to touch every bar.



The machine components should be easy to access and take apart.

WHAT ARE THE BENEFITS?

It is particularly important for mid-sized companies to position themselves strategically so they can respond to changes quickly and remain highly flexible in the future. Our experts can help adapt production lines and service packages to companies' individual requirements, ensuring that production targets are quickly and efficiently reached.

For production staff, machines that can be operated easily and intuitively are a priority. Our machines offer a uniform and logically structured HMI (Human Machine Interface). The selection of recipes for product and format changeovers via the HMI is simple and format changeovers on the machine can be completed without tools. These aspects make it easier to accommodate various products and pack styles on the same production line, while keeping change-over times to a minimum.

The same principles apply for all cleaning and maintenance procedures. During development and layout planning, it should be ensured that all components are easily accessible and can be readily disassembled.

In the worst case, restarting a line and/or changing formats can cause production losses of up to ten percent for manufacturers. Following downtime, packaging solutions from Syntegon immediately deliver the previous level of quality, which represents a major advantage, particularly for small batches.



Using the HMI, operators can switch between different product and format recipes.

WHAT CAN I DO IN FUTURE?

There are add-on options for many of our machines, which either boost their efficiency or, through additional format sets, enhance their flexibility. Manufacturers should plan their shop floor in a way that allows space for future expansions to their production and packaging lines, even at an early stage.

Switching to sustainable film materials can have a positive impact on a product's image. Here, too, prior consulting is an important aspect. Every film has its own barrier and sealing characteristics, which are critical in terms of ensuring tightly sealed packs. Given the range of available options, careful planning and due deliberation are advisable.

HOW HAVE OTHER COMPANIES DONE IT?



“Syntegon provided equipment that allowed us to be flexible to our customer's needs.”

Anthony Flynn, YouBar founder

EXAMPLE YUBAR: FROM START-UP TO PROFESSIONAL PROTEIN BAR MANUFACTURER

In 2006, Anthony Flynn and Ava Bise founded the company YouBar, with the goal of providing healthy protein bars for fitness enthusiasts: a success story that began in their family kitchen. Having quickly reached the limits of manual production, in 2014 YouBar invested in an entry-level flow wrapper: the Syntegon Pack 101, with an output of 150 bars per minute. But by 2016, the Pack 101 was no longer enough to keep up with demand, and a fully automated solution was called for. Given the good collaboration in the past, YouBar once again opted for Syntegon.

As a co-packer, YouBar has to adapt to constantly changing production quantities; needless to say, changeover times have to be as short as possible. Its new packaging line is the ideal fit for these requirements.

FIND OUT
MORE HERE!



YouBar chose a fully automated packaging solution from Syntegon Packaging Technology.



Automation level 3: Medium-sized and large companies.

OVERVIEW: EXPAND MARKET SHARE

Established manufacturers and up-and-coming companies with ambitious growth targets are already well positioned on the traditional snack bar market. Their goal now is to gain a foothold in the health and nutrition bar market and further expand their market share. However, due to their consistency and ingredients, health and nutrition bars pose new, additional challenges for production.



STATUS QUO: ADJUST PRODUCTION AND BOOST EFFICIENCY

Companies that are already active on the snack bar market and hope to rapidly increase their market share with new products, have to adjust their facilities to the requirements of the new type of product.

In contrast, established health bar manufacturers may find themselves facing a rapidly growing demand, which makes a flexible and high-performance processing and packaging process indispensable.

For both groups, the challenge lies in efficiently adapting production to changing requirements and substantially boosting output.

GOAL: FULLY AUTOMATED PRODUCTION CAPACITIES

Given the rapidly growing demand for allergen-free health bars, production capacities are continually increasing. Fast change-over times as well as quick and easy, yet thorough, cleaning are essential to ensuring that format and product changeovers are as efficient and flexible as possible. Consequently, manufacturers are well advised to invest in fully automated processing and packaging systems that offer a high degree of efficiency and excellent format flexibility.



Granola bars are often unevenly shaped and vary in terms of width, length and height. The processing and packaging equipment needs to be able to handle product variability.

WHAT SHOULD I KEEP IN MIND?

Manufacturers require fully automated solutions for every process step, which together form a seamlessly integrated system. However, this system solution also has to be designed for the production and packaging of sticky, delicate products. Consistently gentle product handling and hygienically designed machines guarantee optimal quality and efficiency. In addition, flexibility is called for at a number of levels: for example, a single line is often used to produce various products, pack styles and formats, making quick and easy format changeovers essential. At the same time, products like muesli bars often vary in width, length and height; the system must be able to flexibly and seamlessly accommodate these product variances. To keep downtime to a minimum, it must also be easy to operate, clean and maintain.

WHAT DO I NEED?

For these manufacturers, high quality, flexible format changeovers, and high output are the top priorities. To achieve these goals, the sticky and often crumbly consistency of health bars has to be kept in mind when selecting processing and packaging technologies.

We recommend using a flexible, seamlessly integrated system that is specifically designed for gentle product handling. In this context, “seamlessly integrated” means that all of the individual machines in the system are optimally coordinated and function as a single unit. All interfaces are harmonized, and the machines communicate with one another. This allows the system to autonomously regulate itself and ensures a continuous product flow. The result: longer uptime and high output.



Intuitive and digitalized format change concepts enable production staff to quickly and effortlessly adjust the equipment.

Highly automated solutions in particular require a uniform interface and intuitive operation. Thanks to clever changeover concepts, production staff can quickly and correctly switch between formats and products. All components should be clearly visible, easily accessible, and replaceable without the need for tools.

It is crucial that the fragile health bars and nutrition bars are exposed to as little mechanical pressure as possible, keeping waste to a minimum. Innovative technologies, such as linear motors, offer particularly gentle product handling. Further advantages of this technology include format changeovers at the push of a button, compact design, and gentle acceleration of the products throughout the packaging process.

WHAT ARE THE BENEFITS?

With a fully automated production line, there is no need for production staff to come in contact with the product. This is particularly beneficial for delicate, sticky and allergen-free health and nutrition bars. In processing, the machines mix the ingredients homogeneously and form a precisely defined bar mass slab, the height and width of which can be adjusted flexibly during production. Automating the manufacturing process ensures consistent product quality, together with high performance, and allows manufacturers to rapidly produce and package products of varying sizes.



Thanks to intelligent product feeding with linear motor technology, the fragile bars are transported at top speed to the flow wrap packaging machine in a gentle and contact-free manner.

Gentle handling minimizes product waste, while the system's hygienic design reduces cleaning times. The result: high quality, rapid output, and maximum flexibility. Thanks to intelligent product feeding with linear motor technology, the fragile bars are transported at top speed to the flow wrap packaging machine in a gentle and contact-free manner. Once they have cleared primary packaging, the bars proceed seamlessly to cartoning secondary and/or end-of-line packaging .

In the final step, a “cobot” (collaborative robot) loads the product onto pallets. The various production steps are carefully coordinated and require little to no manual input, ensuring optimal hygiene, output and reliability.



End-of-line solutions of Syntegon “Elematic 3001”.



After primary packaging, the wrapped bars are seamlessly packed into folding cartons.

WHAT CAN I DO IN FUTURE?

Existing machines can be upgraded and modernized to produce and package new products and formats. In terms of packaging, the product distribution stations' modular design allows them to be easily expanded by one or more packaging legs to further increase the output rate. Additional features, such as the HPS (High Performance Splicer), and hygienic concepts with belt-cleaning systems can further enhance user-friendliness and keep downtime to a minimum.

Switching to sustainable film materials can have a positive impact on a given product's image. Another consideration: whether the bars' shelf life should be optimized with the aid of Modified Atmosphere Packaging (MAP). Here, too, there are a number of options that should be considered and carefully planned. By adding new components for processing and forming, new types of bar can also be produced. For example, a thin-film former can be added to make two-layer bars.

In addition, Syntegon Packaging Technology's Digital Shopfloor Solutions provide I4.0 products that contribute to process optimization and further increase overall equipment effectiveness (OEE). With the Operations Assistant, operators can simply scan QR codes with their mobile devices to find instructions on various aspects of their machine, e.g. how to remove belts for cleaning, or how to switch films in a format changeover. Additional training, products and services, like replacement-parts kits and virtual workshops, round off the package.

As a central element, the Human Machine Interface (HMI) supports operators in their day-to-day work. It sets new standards for quality, productivity and production efficiency, while also improving the sustainability of all process flows.

To make their production even more effective, companies can opt for additional features. These include:

- Trolleys for format parts
- Integrated, automatic belt-cleaning systems
- I4.0 solutions, services and tailor-made service packages

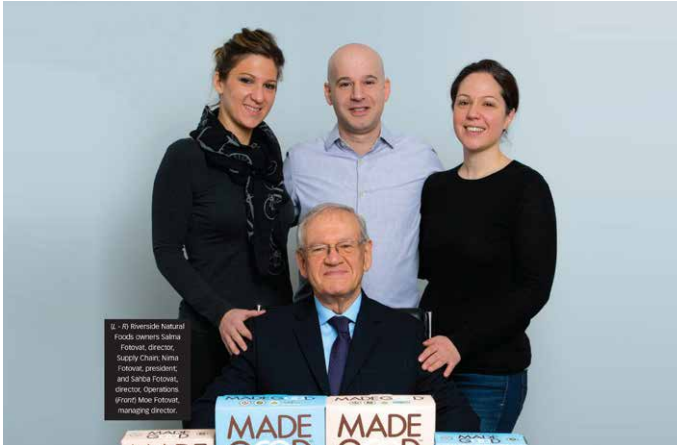


The Human Machine Interface provides crucial support for operators' day to day work.



The HMI sets standards in terms of quality, productivity and production efficiency whilst also increasing the long-term sustainability of processes.

HOW HAVE OTHER COMPANIES DONE IT?



“For our MadeGood® granola bars, we wanted to find a best-in-class solution from mix to pallet.”

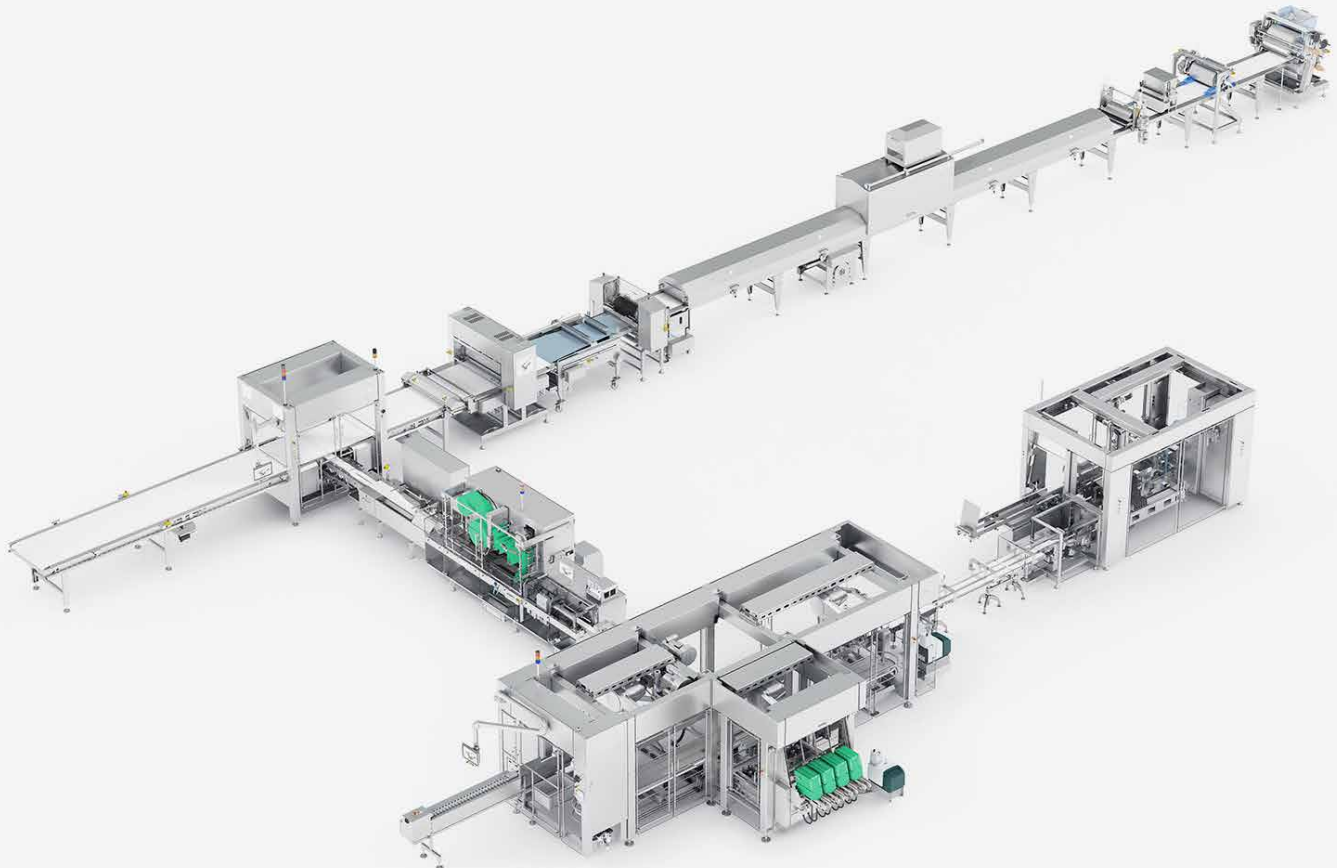
Nima Fotovat, President of Riverside Natural Foods Ltd

EXAMPLE RIVERSIDE NATURAL FOODS LTD: MORE FLEXIBILITY FOR PREMIUM PRODUCTS

Based in Canada, Riverside Natural Foods Ltd was founded in 2013. The company operates two sites: one for contract manufacturing, and one for its in-house brand MadeGood, a label that includes snacks, breakfast cereal and several types of organic granola bars. “In response to the rapidly growing demand for allergen-free, delicious muesli bars, we’ve continually increased our staff and production capacities,” explains Nima Fotovat, President of Riverside. “For our MadeGood® granola bars, we wanted to find a best-in-class solution from mix to pallet.”

The company ultimately chose to use a seamlessly integrated Syntegon processing and packaging system for its bar products. The user-friendly and hygienically designed system offers a high degree of automation, as well as format flexibility, and is currently helping Riverside Natural Foods make its ambitious expansion plans for expansion a reality.

FIND OUT
MORE HERE!



Riverside chose an integrated processing and packaging system for bars from Syntegon.



Summary

Ingredients, markets and manufacturers – in the diverse world of bars, no two products are alike. And no two manufacturers have the same needs: while start-ups are considering the automation of individual production steps, large companies are already working on seamless multi-leg systems that deliver maximum overall equipment effectiveness. That is why we, as a leading provider of processing and packaging technologies, concentrate on solutions that precisely match your individual needs.

No matter whether you are a newcomer to health and nutrition bar manufacturing or have already made a name for yourself on the market: we know what you need and can work with you to jointly to develop the optimal solution. To do so, we offer far more than “just” equipment and technology: comprehensive consulting and customer services before, during and after the installation of new machines, as well as modernization projects in the future, are equally important aspects of our portfolio. Maintaining long-term customer relationships is our primary focus. Further, it makes no difference whether you need help with choosing the optimal processing technology, forming solution, and packaging material, or are looking for the perfect sealing technology: at our testing centers, we regularly assess processing technologies, films and sealing technologies – and can give you recommendations based on decades of experience.

From the first steps into automation to integrated systems to fully automated, multi-leg solutions – we deliver whatever your specific needs are. Our systems are designed for user-friendly, reliable and safe operation. For all of our machines, the focus is on reliability and intuitiveness: from processing technology to horizontal flow wrappers and cartoners. All are designed for easy cleaning and maintenance – not to mention rapid format changes. Our goal is to make your health and nutrition bar production as seamless as possible, with minimal downtime. Thanks to our I4.0 solutions and standardized HMI, you can be sure of full transparency on key process parameters, like capacity utilization and output. In terms of calculating total operating costs, the machine’s service life and future-readiness are central aspects. In this regard, easy cleaning and fast format changes for example contribute to profitability, as they minimize scheduled downtime and maximize overall equipment effectiveness.

The world of health and nutrition bars holds tremendous potential. So what are you waiting for? Start exploring it – with an experienced partner like Syntegon by your side.

Contact us.



Link Website Topic:

<http://info.syntegon.com/packaging-of-energy-bars>

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