Highly efficient fully automatic pet food production line: An intelligent solution to meet diverse needs

In the backdrop of the thriving modern pet economy, the demand for pet food is increasing, driving innovations in production technology. Fully automated pet food production lines, as efficient and intelligent manufacturing systems, can achieve one-stop production from raw material mixing, extrusion shaping, drying and seasoning to finished packaging, meeting market demands for diverse products such as dog food, cat food, and fish feed. Their core advantages lie in high levels of automation, precise nutritional ratios, and the ability to flexibly adjust product forms and flavors, making them a popular choice in the pet food processing industry.

Full-process automation, enhancing production efficiency

This automatic pet food production line integrates various advanced equipment, including a flour mixer, twin-screw extruder, air conveyor, dryer, seasoning line, and cooling conveyor, forming a

seamless production process. First, raw materials are evenly mixed in the mixer to ensure that nutrients such as protein, vitamins, and minerals are fully integrated; then, the twin-screw extruder uses high temperature and pressure to puff the raw materials, creating a porous structure that enhances palatability and improves digestibility. The extruded product is conveyed by air flow to the drying stage to remove excess moisture and extend shelf life, and finally, flavoring agents are added through a spraying seasoning system before cooling and packaging. The entire process requires no manual intervention, significantly reducing production costs and error rates.

Scientific formulation, balancing nutrition and palatability.

The core raw material of the production line is highly expanded cornstarch, which forms a loose texture during processing, suitable for pets to chew. Additionally, the formula can be flexibly

adjusted based on different pet needs: for example, adding bone meal and meat protein to meet dogs' requirement for animal-based nutrition, increasing fish components to enhance the attractiveness of cat food, or mixing plant fibers to promote intestinal health. Moreover, by adjusting the extrusion molds, various shapes such as pellets, strips, and cartoon designs can be produced, enhancing product differentiation and competitiveness.

This production line is widely applicable and aids in industry upgrades.

It is suitable not only for common dog and cat food but can also be extended to aquafeed (such as ornamental fish food) or specialty pet food (such as bird and reptile feed). Its modular design allows companies to flexibly expand according to production capacity needs, while also meeting international food safety standards. For small and medium-sized manufacturers, investing in such automated equipment can quickly achieve large-scale production; for large enterprises, it can

optimize the supply chain and capture the high-end market with its high stability.

The fully automated pet food production line, through technological innovation, integrates nutritional science, smart manufacturing, and market demand to provide efficient and reliable solutions for the industry. As pet consumption trends towards refinement and personalization, production lines with multifunctional and customizable features will become key to enhancing corporate competitiveness. In the future, further integration of intelligent monitoring and big data analysis technologies may open up broader development prospects for the pet food industry.

Intelligent processing from raw materials to finished products
Flour mixer ? Twin screw extruder ? Air conveyor ? Dryer ? Seasoning machine ? Cooler

Flour Mixer : mixing raw materials(corn flour, bone

meal, meat, protein, vitamins,etc)

Screw Conveyor : conveying the materials

Double Screw Extruder : cooking the raw material and extruding different shapes by placing different molds

Air Conveyor : conveying the extruded products

Dryer : baking the products

Flavoring Machine : Spray seasoning oil and powder onto the food

Cooler: cooling

1. Raw Material Mixing: Precise Formulation for Balanced Nutrition

The flour mixer is the first step in the production line, responsible for thoroughly blending various raw materials to ensure uniform nutrient distribution. Main ingredients include corn flour, bone meal, meat, protein, vitamins, and minerals, which can be adjusted according to the nutritional needs of different pets (such as dogs, cats, and

fish). The mixer uses high-speed stirring technology to fully integrate powdery, granular, and liquid ingredients, preventing clumping and ensuring stability in the subsequent extrusion process.

2. Material Conveying: Efficient Transport with Minimal Manual Intervention

The mixed materials are smoothly transported to the double screw extruder via a screw conveyor. This equipment adopts a closed design to prevent contamination, while the conveying speed can be adjusted according to production needs, ensuring uniform feeding into the extruder and improving production efficiency.

3. Extrusion and Expansion: High-Temperature, High-Pressure Shaping for Diverse Forms

The double screw extruder is the core equipment of the automatic pet food production line. Through high temperature and pressure, it gelatinizes starch and denatures protein, allowing the material to expand and take shape during extrusion. By

replacing different molds, a variety of pet food shapes can be produced, such as granules, strips, bone shapes, and fish shapes, catering to the feeding preferences of different pets. The high-temperature process also effectively sterilizes the product, enhancing food safety.

4. Air Conveying: Rapid Transfer While Maintaining Product Integrity

The extruded products are transported to the dryer by an air conveyor. This equipment uses low-pressure airflow to prevent breakage and minimizes mechanical contact, ensuring the integrity of the fragile expanded products.

5. Drying Process: Moisture Removal for Extended Shelf Life The dryer employs hot air circulation technology to evenly remove excess moisture from the food, achieving an optimal moisture content (typically 8%-10%) to prevent mold and extend shelf life. Temperature and drying time can be precisely controlled to ensure a crispy texture while preserving nutritional value.

6. Flavor Coating: Enhancing Palatability to Boost Pet Appetite

The flavoring machine evenly sprays seasoning oils, meat slurries, and nutritional additives onto the food surface to enhance flavor. The spray volume can be adjusted to meet different taste requirements, such as beef, fish, or chicken flavors, improving pets' acceptance of the food.

7. Cooling Treatment: Stabilizing Quality for Packaging

Finally, the products enter the cooler, where natural or cooled air circulation reduces the temperature to prevent moisture absorption due to residual heat, ensuring stability and crispness before packaging. The cooled pet food can then proceed directly to automatic packaging machines for final sealing.

Pet Food Production Process Description Of Technical Parameter		
Machine Of Pet Food Line	Equipment Of Pet Production Line Parts Detail	Equiment Of Pet Food Processing Plant Function
Screw Conveyor		Screw Conveyor Can Not Only Convey On The Level But Also By Any Angel These Materials Can Be

	Input Voltage?380v/50hz	Conveyed In The Stainless Steel Roller Without Leaking, Dust Pollution; Meanwhile It Can Send The Self-Mixer To The Feeding Machine Or The Conditioner And Directly Send The Discharge Hole Of The Inflating Extruder.
	Installed Capacity?1.1kw	
	Power Consumption?1.1kw	
	Output:100-300kg/H	
	Size:2.0×0.8×2.05m	
Ly 65 Double Screw Extruder	Model: Ly65	Rice Powder, Corn Powder, Millet Powder, Wheat Powder, Oats, Buckwheat, Bean, Starch, Etc. Series Of Double-Screw Extruder Mainly Consist Of Feeding System, Extruding System, Cutting System,

	Capacity:120-150kg/H	Heating System, Lubricating System And Controlling System. Automatic Lubricating And Forced Cooling Make Sure That Extruder Performs Safely And Extends Using Life. Feeding System, Extruding System And Cutting System All Adopt Frequency Conversion Timing To Gain Powerful Drive, Stable Perform, And Electricity Saving. Screw Are Made Of Alloy And Processed By Special Technique To Possess High Intensity, Abrasion Resistant And Longer

	Main Motor:22kw	Using Life.
	Heating Power:10kw	
	Feed Motor:0. 75kw **Frequency**	
	Cutting Motor:0. 75kw **Frequency**	
	Oil Pump: 0.37kw **Frequency**	
	Screws Material:38crmoal/38	
	Screw Diameter:65mm	
	Screw Length:1050mm	
	Barrel Material:45#Customize Steel	
Air Conveyor	Model?Fsj-Ii	This Kind Of Oven Has A Wide Range Of Application. It Can Dry All Shapes Of Puffing Food, Including Strip, Lump,

	Input Voltage?380v/50hz	Granular Materials Etc, As Well As Other Types Of Materials. Users Can Choose Different Types With Different Layer, Length, And Heating Mode. It Has Compact Design And Easy Operation. The Oven Is Droved With Double Pitch Roller Chain And Heats Materials Circularly. It Runs Smoothly, Never Obstruction. Roasting Temperature And Time Can Be Adjusted, Effect Of Roasting Is Perfect. With High Efficiency

	Installed Capacity?0.75kw	Fuel Saving System, Reasonable Heat Distribution, Material Is Heated Equally, Low Energy But Large Output.
	Power Consumption?0.75kw	
	Output?100-300kg/H	
	Size?1.2×0.6×2.3m	
	Used To Carry Products To The Next Device.	
Three-Layers Dryer (Electrical)	3 Layer, Electric Type	
	Capacity:100-150kg/H;	
	Installation Power: 45kw	
	Driving: 0.75kw	
	Heating Power:44.25kw	
	Dry Time: About 20 Minutes	
	Dimension: 5200*1200*2300mm	

Technical Parameter

Model	Extruder Power	Output	Dimension
LY 65	33KW	120-150kg/h	2500*930*1850mm
LY 70	44KW	200-250kg/	3000*850*13

		h	00mm
LY 85	93KW	400-500kg/h	4200*900*2200mm
LY 95	124KW	1000-1200 kg/h	5500×2400×3200mm

Advantages of Pet Food Making Machine

Avantage	**Precise control** of process parameters and automation to ensure optimized particle quality
	Advanced production line automation helps reduce operating costs and promote consistent nominal production.
	Creative shapes and finishing of products with innovative shapes and different textures (co-extrusion) by using special molds.
	Use standard parts of extrusion and drying equipment to **reduce maintenance** and easy access to different machine components.

In today's competitive pet food market, manufacturers must balance product quality, production efficiency, and cost control. Modern

automated production lines achieve this balance through precise process parameter control and intelligent system integration, ensuring consistently high-quality extruded pet food products while optimizing operational economics.

Precision Process Control for Superior Product Quality

The foundation of premium pet food production lies in exacting control over extrusion parameters. Temperature regulation within ±1°C maintains optimal starch gelatinization, while screw speed adjustments within 5 RPM increments ensure uniform product density. Moisture sensors provide real-time feedback to the conditioning system, maintaining water content within 0.5% of target values. These controlled variables directly impact:

110. Expansion ratio consistency (maintained within ±3%)
110. Nutrient retention rates (preserving up to 98% of heat-sensitive vitamins)
110. Texture uniformity (achieving <5% variance in hardness measurements)

Automation-Driven Operational Efficiency

The integrated automation system synchronizes all production stages, delivering measurable benefits:

110. Energy Optimization - Smart load balancing reduces power consumption by 15-20% compared to manual operation
110. Labor Efficiency - Automated controls enable 24/7 operation with 60% fewer personnel
110. Yield Improvement - Precision feeding systems minimize material waste, achieving 99%+ material utilization
110. Quality Consistency - Automated monitoring maintains product specifications within ±2% tolerance

Innovative Product Differentiation

Advanced co-extrusion capabilities allow for unprecedented product customization:

110. Multi-texture products through concentric extrusion dies (e.g., crunchy exterior with soft interior)
110. Complex geometries including 3D shapes and hollow structures
110. Variable density products for specialized

nutritional delivery

110. The mold changing system enables rapid product switching (<15 minutes) with automatic die recognition, supporting flexible production of 50+ SKUs on a single line.

Maintenance-Optimized Equipment Design

Standardized component architecture provides multiple operational advantages:

110. Modular construction allows component replacement in <4 hours
110. Common spare parts reduce inventory costs by 30%
110. Tool-less access points enable routine maintenance without specialized equipment
110. Predictive maintenance systems forecast component wear with 90% accuracy

Future-Ready Production Capabilities

The production line incorporates IoT connectivity for:

110. Remote performance monitoring via cloud platforms
110. AI-driven process optimization
110. Automated quality documentation for regulatory compliance
110. Energy consumption tracking for sustainability

reporting

This advanced production paradigm delivers 18-22% higher overall equipment effectiveness (OEE) compared to conventional systems, while enabling manufacturers to quickly adapt to market trends through rapid product innovation and consistently precise manufacturing execution. The combination of rigorous process control, intelligent automation, and maintenance-friendly design establishes a new standard for profitable, high-quality pet food production. The state-of-the-art machinery ensures seamless integration of raw materials, from fresh meats and vegetables to specialized nutritional supplements, guaranteeing optimal ingredient blending and homogenization. The automated systems utilize real-time data analytics to monitor and adjust production parameters, ensuring each batch meets stringent quality standards. The maintenance-friendly design features easily accessible components and intuitive interfaces, reducing downtime and enhancing operational efficiency. This innovative approach not only boosts productivity but also minimizes waste,

contributing to a more sustainable manufacturing process. The result is a superior product line that caters to diverse pet dietary needs, from hypoallergenic formulas to high-energy performance blends, all produced with unparalleled precision and consistency.

Sample

This state-of-the-art pet food production line is meticulously designed to heat and precisely squeeze raw materials, transforming them into delectable pet food through intricately crafted molds. These molds come in various shapes and sizes, catering to the diverse tastes and dietary needs of different pets. The advanced machinery ensures uniformity and quality, making each piece of pet food both nutritious and appealing.
The automatic Pet food production line boasts versatility, being widely utilized in the manufacturing of high-quality dog food, cat food, bird feed, as well as specialized floating and sinking feed tailored for fish and shrimp. This comprehensive system guarantees that pets

receive meals that are not only delicious but also nutritionally balanced, enhancing their overall health and happiness.

For more information, please visit the Facebook page: https://www.facebook.com/Foodextruderfactory