

# MAVI PROTEIN CONSULTANCY



**BREEDING  
PRODUCTION  
SUSTAINABLE  
PLANNING**

**CONSULTANCY  
AQUACULTURE  
AGRICULTURE  
ANIMAL HUSBANDRY**

**ORGANIC  
ENGINEERING  
BIOTECHNOLOGY  
NANOTECHNOLOGY**

**PROJECT  
FEASIBILITY  
R&D INNOVATION  
INDUSTRIAL**

**NATIONAL SME  
INDUSTRY  
TECHNOLOGY  
MECHANIZATION**







# MAVI PROTEIN CONSULTANCY



## ABOUT US

The **Mavi Protein Consultancy Company** founded at the beginning of 2015 as a multipurpose professional consulting services. **Associate Professor Fatih BAŞARAN** has started to work in 1990 to date about his experiences which consist of aquaculture, academic and real sectors and he wants to share all his experiences to all humanity.

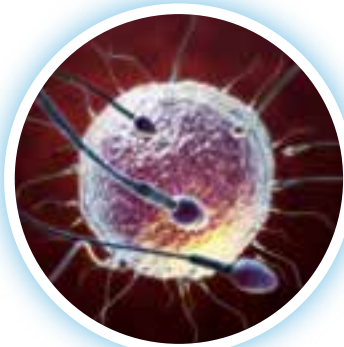
## OUR MISSION

Our company's mission is to guide to the investors and producers to achieve their research and development projects. Our main aims are to increase their manufacturing power and to develop the quality of the employees.

We want to perform all works of our partners with the great motivation and excitement. We would like to establish long-term relationships with our business partners.

## OUR VISION

Our vision is being a meeting point of national and international project partners. Our company provides to improve highest level of scientific techniques to the customers and they can create a better tomorrow.





### **AQUACULTURE-FISHERY SERVICES**

- ➔ Aquaculture Systems Project Design, Installation & Turnkey Services
- ➔ Breeding Cage Systems, Hatchery, Inland Ground & Concrete Ponds, Fish Processing Systems, Live Feed Cultivation Systems, Logistic Support Systems, etc.
- ➔ Planning of all kind of Biological Production (Broodstock Fish Management and Organization, Alternative Species Aquaculture, Larvae, Nursery and Growout Aquaculture, Design, Track and Termination of Scientific Studies). Aquaculture Staff Training Services, etc.
- ➔ All kind of Aquaculture System Mechanizations, Installations and Technical Consulting Services (Hatchery, Cage, Ground & Concrete Ponds, Fish Processing and Packaging Units etc.)
- ➔ Feed and Food Machinery Installation and Development Services, Feed Ratio Preparations & Practise Services, All kind of Raw Materials, Feed Additives, Vitamins & Minerals Supply and Advisory Services
- ➔ All kind of Laboratory Equipment and Supplies Materials Provide & Import Services
- ➔ Freshwater and Marine Aquarium and Pet Animals and Materials Supply and Turnkey Installations & Training Services
- ➔ Aquaponic Systems, Live Feed and Algal Production Systems Installation Services

### **AGRICULTURE SERVICES**

- ➔ Partnership of Production Problems of all Agricultural Activity, Implementing the Innovative Projects with the Appropriate Support Programs, All of Agriculture and Food Industry Alternative Machine Line Solutions, Effective Microorganisms Use and Training, Counselling Supplements and Additives Using in the Agriculture, Recycling and Waste Treatment Project Developing Services

### **ANIMAL HUSBANDRY SERVICES**

- ➔ Partnership of Production Problems of all Animal Husbandry Activity, Implementing the Innovative Projects with the Appropriate Support Programs, All of Animal Husbandry and Food Industry Alternative Machine Line Solutions, Effective Microorganisms Use and Training, Counselling Supplements and Additives Using in the Animal Husbandry, Recycling and Waste Treatment Project Developing Services.





# MAVI PROTEIN CONSULTANCY

## Aquaculture Services

### OUR SERVICES OFFERED WITH SOLUTION PARTNERS;

#### INNOVATION AND INDUSTRIAL PROJECT SERVICES

National Project Preparation, Writing and Executive Consulting Services  
International Projects Preparation and Finding Project Partners Services

#### BIOLOGICAL PRODUCTION CONSULTANCY

Planning Services of All kind of Biological Productions  
Broodstock Fish Management and Organization  
Larvae, Nursery and Growout Aquaculture  
Alternative Species Aquaculture  
Fish Growing Productions  
Live Feed and Algal Production  
Freshwater and Marine Aquarium Fish Production

#### TURNKEY SYSTEM INSTALLATIONS

Fish Hatchery Facilities  
All kind of Mechanization Installations of  
Recirculating Aquaculture (RAS) and Open Systems  
Fish Growing Farm Facility  
Marine and Inland Cage Systems  
Land Base Growing Farm Facilities  
Planning and Installation Services of Fish Processing Facilities  
Feed and Food Machinery Installation  
Freshwater and Marine Aquarium Facilities Installation

#### LOGISTIC SERVICES

Aquaculture Materials, Equipments and Supplies  
All Laboratory Materials and Equipments  
National and International Certificates and Certification Services  
Import, Export and Customs Clearance Procedures

#### FEASIBILITY AND ENGINEERING SERVICES

Project Estimate and Pre-feasibility Services  
System Revision and Improvement Services  
Profitability Analysis of the Production Systems



# Aquaculture Services







# MAVI PROTEIN CONSULTANCY

## Agriculture Services

### OUR SERVICES OFFERED WITH SOLUTION PARTNERS;

#### **Solution Partnership of Production Problems of all Agricultural Activity**

Analysis of the Feasibility and Profitability of Agricultural Production,  
Estimate and Engineering Services

#### **Implementing the Innovative Projects with the Appropriate Support Programs**

National Projects Preparation, Writing and Executive Consulting Services  
International Projects Preparation and Finding Project Partners Services

#### **All of Agriculture and Raw Industry Alternative Machine Line Solutions**

Special Machinery System Services

#### **Effective Microorganisms Use and Training**

Use in Agriculture of Active Microorganisms

#### **Counselling Supplements and Additives Using In The Agriculture**

Counselling Natural Ingredients Using

#### **Recycling and Waste Treatment Project Developing Services**

Biological Waste Recycling Systems  
Compost Material Preparation and Production Services  
Silage Preparation and Production Services

#### **TURNKEY SYSTEM INSTALLATIONS**

Greenhouse Installations  
Cold Storage Installations  
Fruit and Vegetable Processing and Packaging Facilities  
Olive and Olive Oil Processing Facilities

#### **LOGISTIC SERVICES**

Import, Export and Customs Clearance Procedures  
Maintenance and Technical Support Services



# Agriculture Services







# MAVI PROTEIN CONSULTANCY

## Animal Husbandry Services

### OUR SERVICES OFFERED WITH SOLUTION PARTNERS;

#### **Solution Partnership of Production Problems of all kind of Animal Husbandry Operations**

Pre-feasibility, Feasibility and Profitability Analysis of Animal Husbandry Production Systems

#### **Implementing the Innovative Projects with the Appropriate Support Programs**

National Projects Preparation, Writing and Executive Consulting Services  
International Projects Preparation and Finding Project Partners Services

#### **All of Animal Husbandry and Food Industry Alternative Machine Line Solutions**

Special Machinery System Development, Establishment and Using Services

#### **Effective Microorganisms Use and Training**

Use and Development Active Microorganisms in the Animal Husbandry

#### **Counselling Supplements and Additives Using In The Animal Husbandry**

Counselling and Education of Natural Ingredients Using in the Animal Husbandry

#### **Recycling and Waste Treatment Project Developing Services**

Installation of Slaughterhouse Waste Treatment Systems  
Compost Producing Services  
Silage Preparation and Production Services

#### **TURNKEY SYSTEM INSTALLATIONS**

Animal Farms Installations  
The Installation of the Entire Poultry Farms  
Slaughterhouse Installations  
Cold Storage Systems  
Feed Industry and Mechanization Systems  
Meat and Dairy Products Processing and Packing Facilities

#### **LOGISTIC SERVICES**

Import, Export and Customs Clearance Procedures  
Maintenance and Technical Support Services





# Animal Husbandry Services





### Animal Husbandry Industry Food Production Machinery Line

- 1 Mixer
- 2 Screw Conveyor
- 3 Double Screw Extruder
- 4 Air Conveyor
- 5 Dryer
- 6 Flavoring Machine
- 7 Cooling Conveyor



#### Production Line Introduction

Pet food is close to human beings food in the fine level, the health index and the nutritional ingredients, some of them request more highly than human beings. Pet food generally consists of meat, meat by products, cereal, grain, vitamins, and minerals. General grains, such as soybean meal, corn meal, cracked wheat, and barely, are often used to improve the consistency of the products. The meat is mixed with the other ingredients.

Ingredients are brought together in a mixer. Dry ingredients are grinded prior to mixing with wet ingredients. The mixed ingredient is heated in the pre-conditioner prior to feeding into the extruder. In extruder, the ingredients are cooked under intense heat and pressure as it moves toward the open end of the extruder where ingredients pass through a shaping die and knife. Dog food is dried in a multi-pass dryer until its moisture content is low enough to make it shelf stable. Dog food may pass through a coating drum where animal fat and vitamins are applied onto dog food.

#### Technical Parameter

Model	SP65-III	SP70-II	SP85-II
Input Voltage	380 V / 50 hz	380 V / 50 hz	380 V / 50 hz
Installed Power	70 kw	90 kw	120 kw
Power Consumption	40 kw	50 kw	100 kw
Production Capacity	120 - 150 kg/h	200 - 250 kg/h	400 - 500 kg/h
Dimension	22000 x 1200 x 2200 mm	24000 x 1500 x 2200 mm	28000 x 3500 x 4300 mm

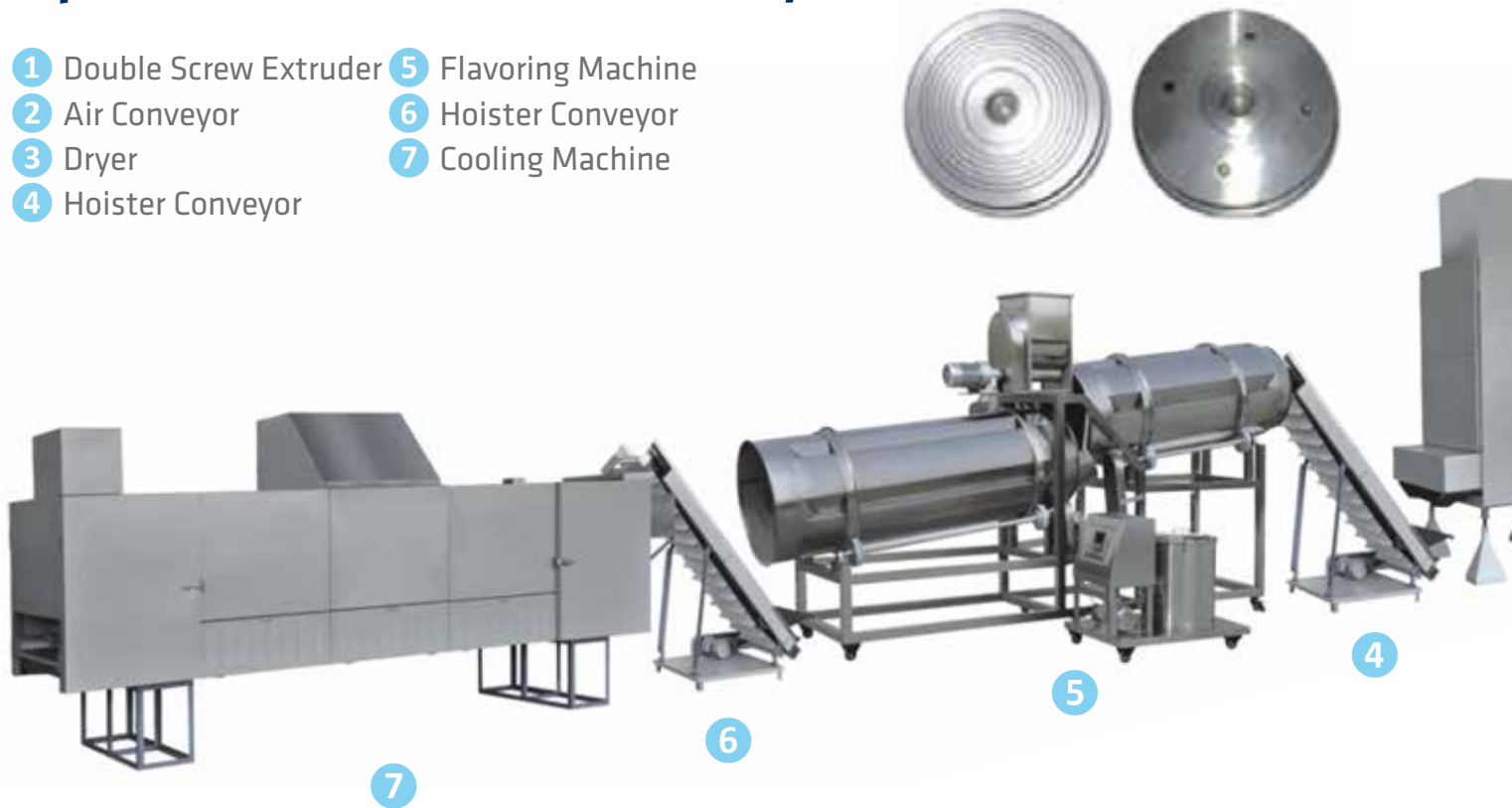






### Aquatic Feed Production Machinery Line

- 1 Double Screw Extruder
- 2 Air Conveyor
- 3 Dryer
- 4 Hoister Conveyor
- 5 Flavoring Machine
- 6 Hoister Conveyor
- 7 Cooling Machine



#### Production Line Introduction

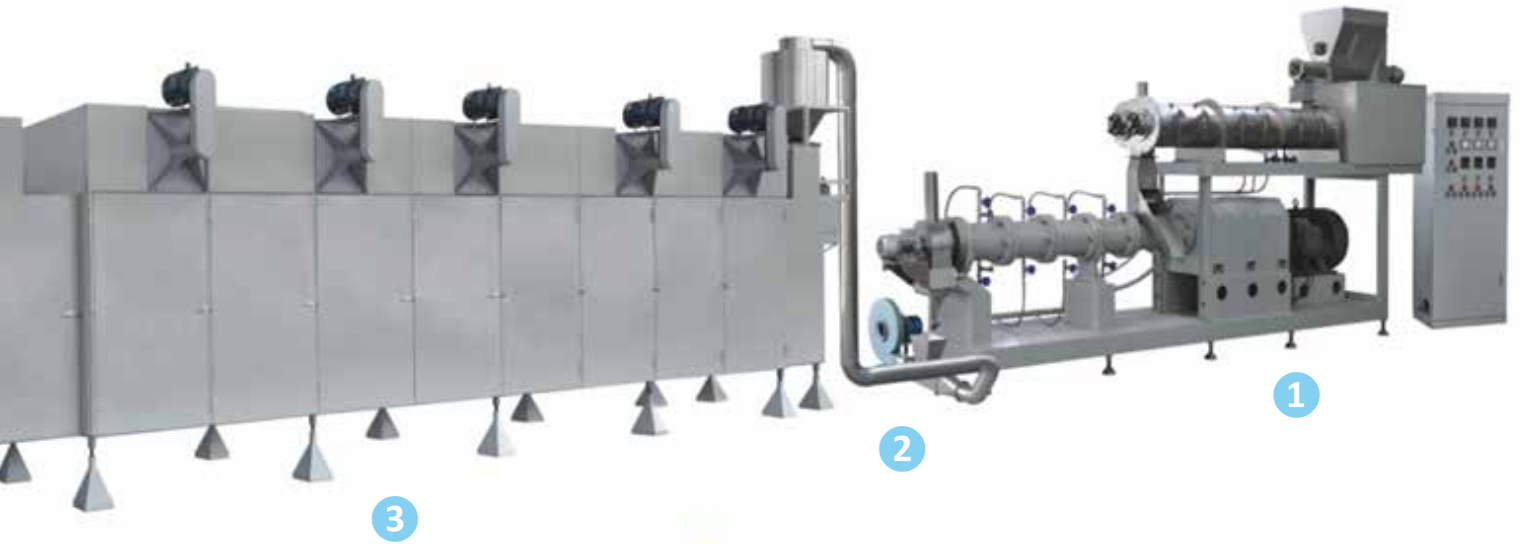
Fish food is plant or animal material intended for consumption by pet fish kept in aquariums or ponds. Fish foods normally contain macro nutrients, trace element and vitamins necessary to keep captive fish in good health. Fish food is a kind of unique digestive tract that requires specialized ingredients to ensure proper digestion and optimum health.

Approximately 80% of fishkeeping hobbyist feed their fish exclusively prepared foods and most commonly are produced in flake, pellet or tablet form. Pellet forms, some of which sink rapidly, are often used for larger fish or bottom feeding species such as loaches or catfish. Some fishfoods also contain additives such as sex hormone or beta-carotene to artificially enhance the color of ornamental fish. Generally the more moisture a particular example of fish food contains, the more readily it will deteriorate in quality.

#### Technical Parameter

Model	SP65-III	SP70-II	SP85-II
Installed Power	70 kw	90 kw	120 kw
Power Consumption	40 kw	50 kw	100 kw
Production Capacity	120 - 150 kg/h	200 - 250 kg/h	400 - 500 kg/h
Dimension	22000 x 1200 x 2200 mm	24000 x 1500 x 2200 mm	28000 x 3500 x 4300 mm







### Aquaculture Fish Food Production Machinery Line

- 1 Double Screw Extruder
- 2 Air Conveyor
- 3 Dryer
- 4 Cooling Conveyor



#### Production Line Introduction

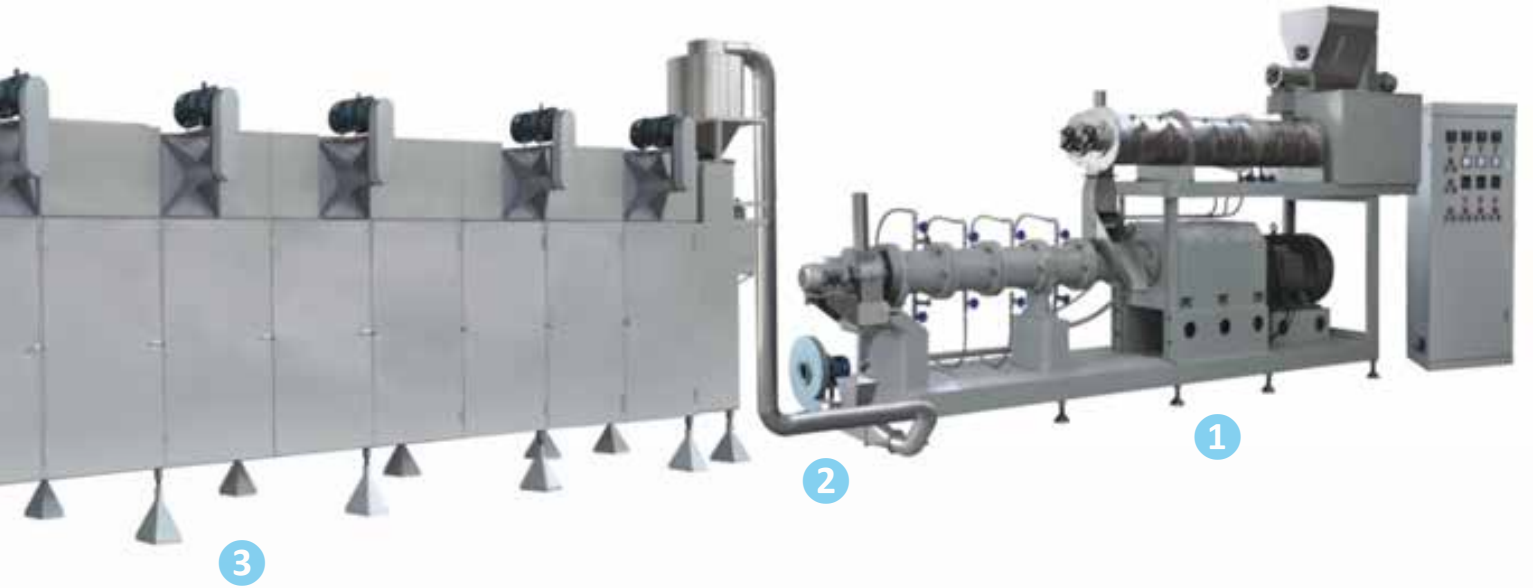
Fish food is plant or animal material intended for consumption by pet fish kept in aquariums or ponds. Fish foods normally contain macro nutrients, trace element and vitamins necessary to keep captive fish in good health. Fish food is a kind of unique digestive tract that requires specialized ingredients to ensure proper digestion and optimum health.

Aquaculture fish foods can produce for the special habitat conditions (marine, freshwater, brackish water) and can be shaped as pellet forms. These foods also can produce as floating, sinking and slow sinking feature through high extrusion technology. Cold and hot extrusion technic can let the foods as required quality

#### Technical Parameter

Model	SP65-III	SP70-II	SP85-II
Installed Power	70 kw	90 kw	120 kw
Power Consumption	40 kw	50 kw	100 kw
Production Capacity	120 - 150 kg/h	200 - 250 kg/h	400 - 500 kg/h
Dimension	22000 x 1200 x 2200 mm	24000 x 1500 x 2200 mm	28000 x 3500 x 4300 mm







### Pet Food Production Machinery Line

- 1 Mixer
- 2 Screw Conveyor
- 3 Double Screw Extruder
- 4 Air Conveyor
- 5 Dryer
- 6 Flavoring Machine
- 7 Cooling Conveyor



### Production Line Introduction

Pet food is close to human beings food in the fine level, the health index and the nutritional ingredients, some of them request more highly than human beings. Pet food generally consists of meat, meat by products, cereal, grain, vitamins, and minerals. General grains, such as soybean meal, corn meal, cracked wheat, and barely, are often used to improve the consistency of the products. The meat is mixed with the other ingredients.

Ingredients are brought together in a mixer. Dry ingredients are grinded prior to mixing with wet ingredients. The mixed ingredient is heated in the pre-conditioner prior to feeding into the extruder. In extruder, the ingredients are cooked under intense heat and pressure as it moves toward the open end of the extruder where ingredients pass through a shaping die and knife. Dog food is dried in a multi-pass dryer until its moisture content is low enough to make it shelf stable. Dog food may pass through a coating drum where animal fat and vitamins are applied onto dog food.

### Technical Parameter

Model	SP65-III	SP70-II	SP85-II
Input Voltage	380 V / 50 hz	380 V / 50 hz	380 V / 50 hz
Installed Power	70 kw	90 kw	120 kw
Power Consumption	40 kw	50 kw	100 kw
Production Capacity	120 - 150 kg/h	200 - 250 kg/h	400 - 500 kg/h
Dimension	22000 x 1200 x 2200 mm	24000 x 1500 x 2200 mm	28000 x 3500 x 4300 mm







### Pet Treats, Pet Chew, Twisted-Bi Color Pet Food Production Machinery Line

- 1 Mixer
- 2 Screw Conveyor
- 3 Single Screw Extruder
- 4 Cooling Machine
- 5 Cutting Machine
- 6 Hoister Conveyor
- 7 Dryer



#### Production Line Introduction

Pet treats food takes starch as raw materials with scientific configuration and was extruded from co-extruder, it can be made into many kind of shapes such as stick, bone, bi-color, bi-flavor, etc. This kind of food not only provide protein, fat, vitamin, nutrition for dogs, but also satisfy the dog nature hobby. It has following features; strong teeth, clean mouth and teeth. The products can be made in many shapes, like twist, double colors, core-filling and so on.



#### Technical Parameter

Model	SP100
Installed Power	90 kw
Power Consumption	63 kw
Production Capacity	60 - 100 kg/h
Dimension	20000 x 2000 x 2000 mm

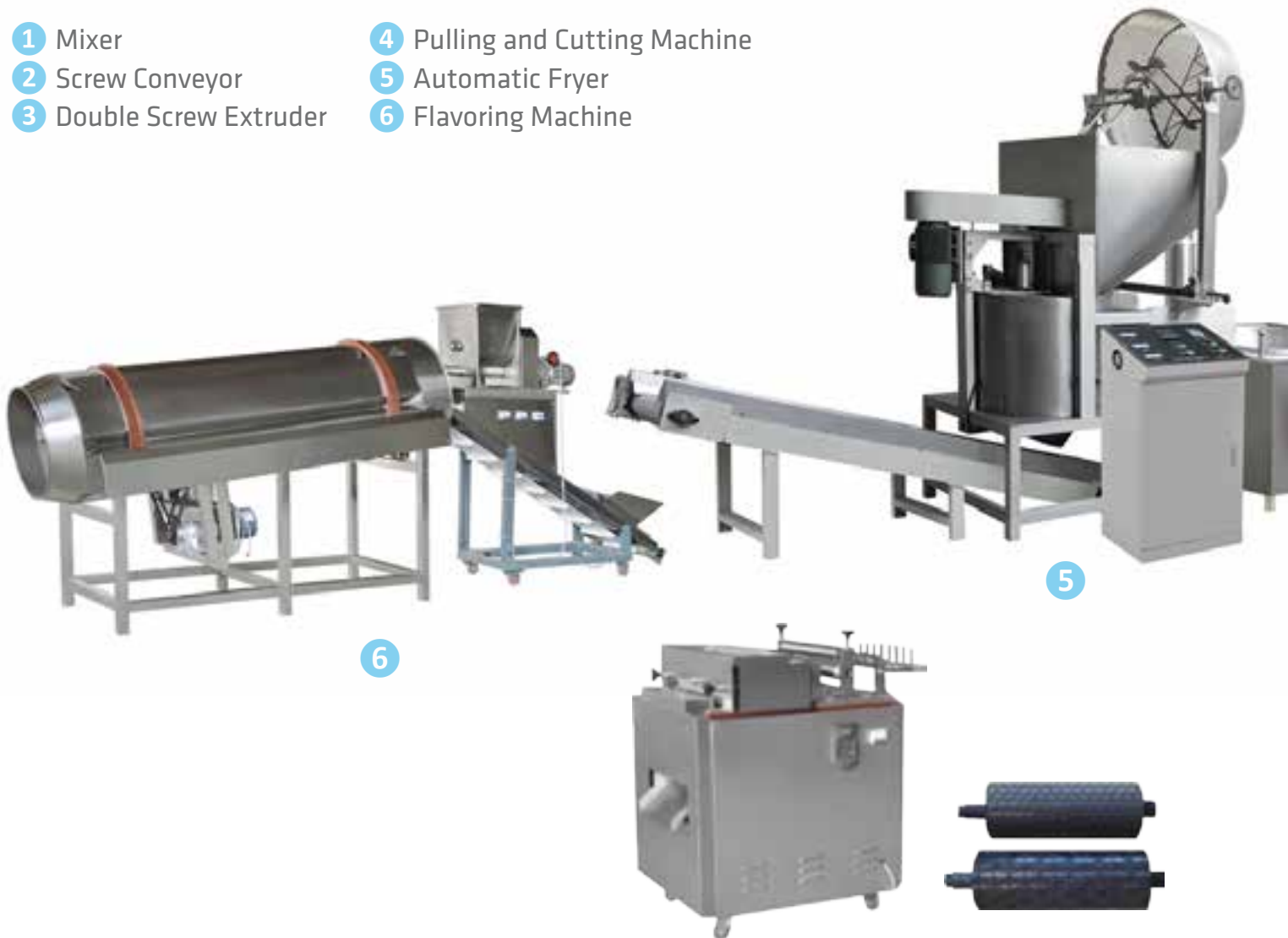






### Extruded Chips, Snacks and Cracker Processing Machinery Line

- 1 Mixer
- 4 Pulling and Cutting Machine
- 2 Screw Conveyor
- 5 Automatic Fryer
- 3 Double Screw Extruder
- 6 Flavoring Machine



**Molding Machine and Patterns**

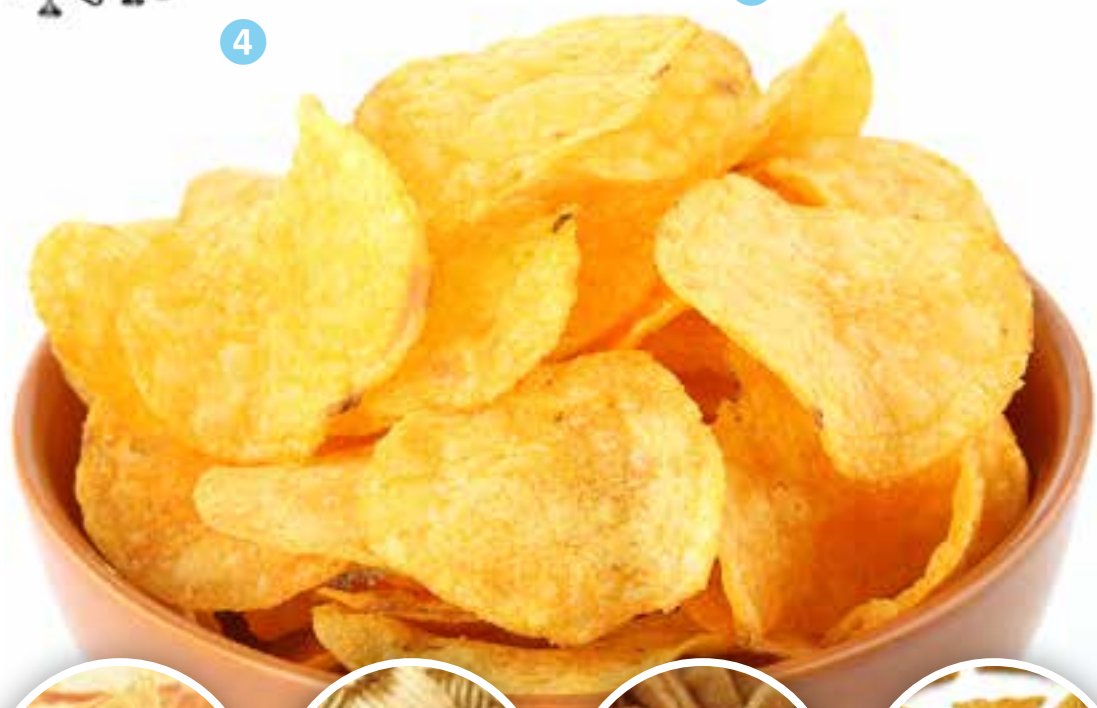
#### Production Line Introduction

Chips and crackers are kind of snacks made from wheat flour, corn flour, which are extruded, cut and then fried. The main raw materials are wheat flour, corn flour, water, vegetable oil and salt. After frying and flavoring, we get very crunchy triangle or other shapes chips which are popular with both children and adult. Only by changing the molds, shaping or cutting machine, the shapes can be various, like sticks, square sheet rib chips, diamond chips, wavy chips, pillow shapes and bugles etc. The taste is savory and not greasy.

#### Technical Parameter

Model	SP65-III	SP70-II
Installed Power	89 kw	106 kw
Power Consumption	58 kw	68 kw
Production Capacity	120 - 150 kg/h	180 - 240 kg/h
Dimension	19000 x 1500 x 2200 mm	20000 x 1500 x 2200 mm





### Corn Flakes, Breakfast Cereal Production Machinery Line

- 1 Mixer
- 6 Flaking Machine
- 11 Hot Air Puffing Dryer
- 2 Screw Conveyor
- 7 Air Conveyor
- 12 Sugar Spraying Line
- 3 Double Screw Extruder
- 8 Dryer
- 13 Dryer
- 4 Vibrate Feeder
- 9 Hoister Conveyor
- 14 Cooling Conveyor
- 5 Air Conveyor
- 10 Vibrate Feeder



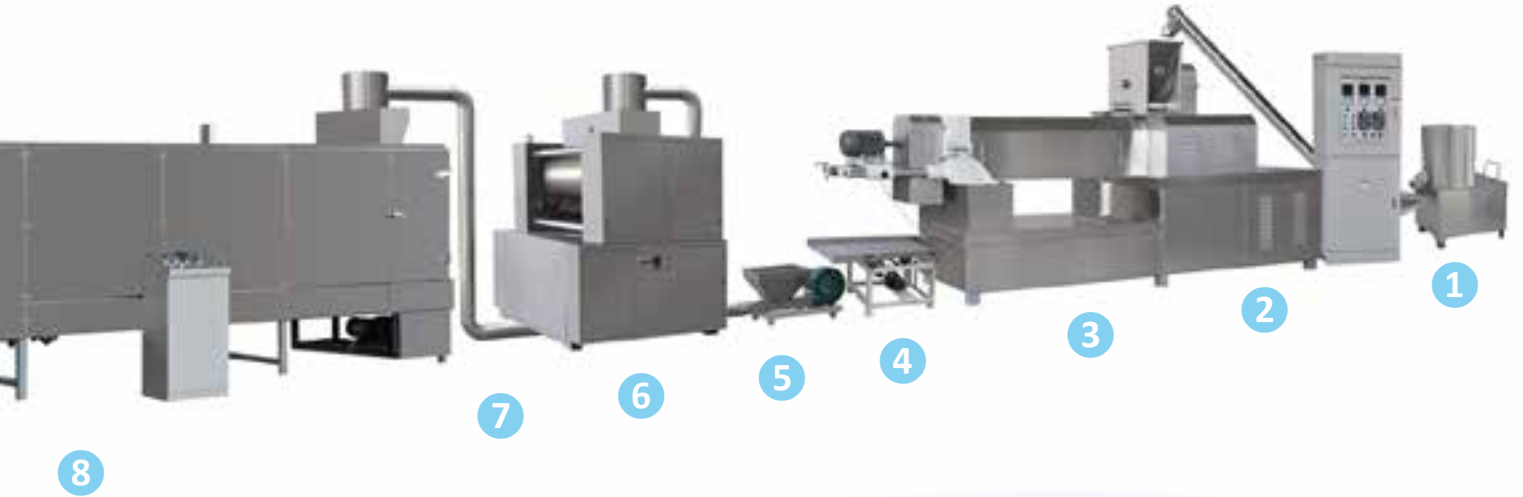
#### Production Line Introduction:

Corn flakes are a popular breakfast cereal manufactured by twin-screw extruder through the treatment of flakes of grain, served with milk, coffee or marshmallows-were a very popular food among the families. Corn flakes (breakfast cereals)/crispy rice machinery is developed and manufacture on the basis of the international advanced extruder technology, which is named corn flake breakfast processing line. It is technology performance and quality can reach international advanced level. This line consist of mixing, extrusion flaking, drying, flavoring, packing which can be finished in one time, it is full automatically and easy to operate. The raw material is corn and other grains, corn should be determinate and peeling.

#### Technical Parameter

Model	SP65-III	SP70-II	SP85-II
Installed Power	140 kw	160 kw	190 kw
Power Consumption	90 kw	120 kw	140 kw
Production Capacity	120 - 150 kg/h	180 - 240 kg/h	300 - 500 kg/h
Dimension	39000 x 1200 x 2200 mm	41000 x 1500 x 2200 mm	43000 x 3500 x 4300 mm







### Crispy Snacks Production Machinery Line

- 1 Vertical Mixer
- 2 Screw Conveyor
- 3 Rotary Head Extruder
- 4 Hoister Conveyor
- 5 Tumble Sifter
- 6 Vibrate Feeder
- 7 Continuous Fryer
- 8 Vibrate de-Oil Machine
- 9 Flavoring Line



#### Production Line Introduction:

Crispy snacks are special extruded snacks, very crunchy and great in taste. They are made by a special extrusion process. The process is unique because every piece is varied in length and diameter giving a home made effect. The corn grits is moisturized in the vertical mixer with water and fed to the Rotary Head Extruder. In the extruder, due to the two rotary plates made of brass, the corn grits are squeezed and twisted to form curls shape. The curls pass through the die and get cut by the cutting knives into required lengths.

The corn curls are fried in cooking oil or toasted in oven and then conveyed into a continuous coating drum. The retention time is controlled by adjusting the angle of the drum to suit the required levels of coating and required throughputs, to ensure a full and even coating. Seasonings are sprayed on the surface to improve their taste.

#### Technical Parameter

Model	SP76
Installed Power	95 kw
Power Consumption	58 kw
Production Capacity	100 - 150 kg/h
Dimension	16000 x 1100 x 2400 mm

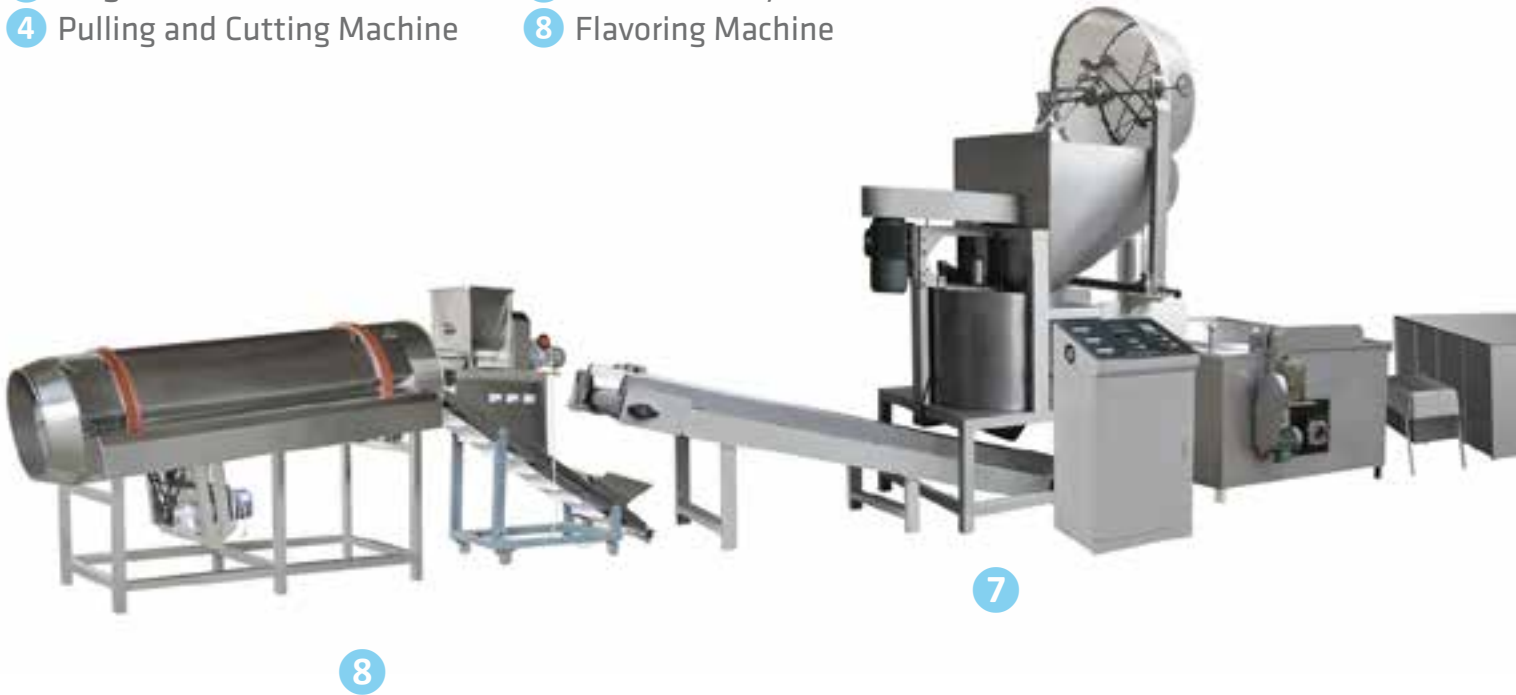






### Fried Pellet, Screw-Shell Shaped, 3D Pellet Processing Machinery Line

- 1 Mixer
- 2 Screw Conveyor
- 3 Single Screw Extruder
- 4 Pulling and Cutting Machine
- 5 Cooling Machine
- 6 Hot Air Dryer
- 7 Automatic Fryer
- 8 Flavoring Machine



#### Production Line Introduction

Pellets produced by single-screw extruder. The raw material can be potato starch, corn starch, cassava starch, wheat flour, etc. Through extruding & cooking, the pellet can be different shapes like shell, spiral, square tube, circle tube, and so on. After drying the pellet need frying to get expanded.

#### Technical Parameter

Model	SP100
Installed Power	96 kw
Power Consumption	68 kw
Production Capacity	100 - 150 kg/h
Dimension	25000 x 2000 x 2000 mm







### Muesli Bar, Cereal Bar, Chocolate Oat Candy Processing Machinery Line

- 1 Hoister Conveyor
- 2 Molding Machine
- 3 Cooling Conveyor



#### Production Line Introduction

The machine can produce all kind of candy with chocolate mixing with corn, peanuts and grains. The machine is made of stainless steel and controlled by PLC and adjusting the speed by inverter. SMC magnetic rodless cylinder special parts; it can achieve food hygiene requirements. Corn chocolate (mixed ingredient is corn), the chocolate candy is made from corn and other materials through mixing, molding, cooling. This candy has many kinds of shapes: stick, pagoda, ball, square shapes. Meanwhile it is with crispy taste and loved by customers.

#### Technical Parameter

Model	SP45-II
Installed Power	6,5 kw
Power Consumption	4,5 kw
Production Capacity	300 - 400 kg/h
Dimension	12000 x 900 x 1500 mm





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### Core Filling, Puffed Snacks Production Machinery Line

- 1 Mixer
- 2 Screw Conveyor
- 3 Double Screw Extruder
- 4 Core Filler Machine
- 5 Multi-Function Shaper
- 6 Hoister Conveyor
- 7 Dryer
- 8 Flavoring Machine



#### Production Line Introduction

The core-filling snack needs extra shaper and filling machine. The rope will be leaded to downstream rollers on shaper machine at higher surface speed from extruder and cut in to pillow shape. The special shaper machine is available for different shapes, for example; fish shape snack, slice-bread etc.

Cheese puffs/corn snacks machines takes corn grids or corn flour as raw material. The grids is put in the material mixer where the water is added and then is conveyed trough screw conveyor till the extruder's feeding silo. In the extruder we will get the extruded product in the desired shape quickly. The product shape is determined by a combination of the die aperture, expansion and the die face cutter. Processing temperatures are precisely regulated through individual heating and cooling systems in each sections of the extruder barrel.

After the extrusion the snacks are conveyed by a pneumatic conveyor into the multi-pass dryer. From the dryer the snacks fall into the continuous coating drum and receive the spices (flavors, salt, fat, cheese or other spices). After being seasoned, the snack is conveyed into the automatic vertical packing machine. The snack will be packed in to pillow plastic bag with on-140gr according to customers' request. If a sweetened cereal is desired, the product may enter a coating unit for a liquid confectionery application, followed by a final drying procedure before packaging.

#### Technical Parameter

Model	SP65-III	SP70-II
Installed Power	75,5 kw	100 kw
Power Consumption	45 kw	53 kw
Production Capacity	120 - 150 kg/h	180 - 240 kg/h
Dimension	21000 x 1200 x 2200 mm	23000 x 1500 x 2200 mm







### Baby Food Production Machinery Line

- 1 Mixer
- 2 Screw Conveyor
- 3 Double Screw Extruder
- 4 Air Conveyor
- 5 Dryer
- 6 Hoister Conveyor
- 7 Vibrating Screen
- 8 Milling System



#### Production Line Introduction

Baby food machinery is used to produce infant baby food and some other instant flour products. The raw material consist of cereal flour (corn, wheat, rice, oat, soy, etc). The raw material is put in the mixer then mixed ingredients are fed into extruder feeder. The extruder is fitted with: special cylindrical holding silo, vibratory doser with hopper to feed the extruding screw, extrusion mechanism and cutting, independent electric panel.

After the extrusion the product is conveyed till the continuous rotary drier through pneumatic conveyor. The continuous rotary drier has a heat exchanger with gas burner that allows a better heating of the product and its economically viable owing the low cost of electric power. The dried product is taken by the hoister till the mill's feeding silo where the product is processed through the friction of the hammers and thus obtaining flour at the desired granulation. With a blender, the pre-mix of vitamins, mineral and milk will be added to make fortified blender foods. We have much experience to provide solutions for baby food, FBF, CSB and samaposha etc.

#### Technical Parameter

Model	SP65-III	SP70-II	SP85-II
Installed Power	103 kw	134 kw	200 kw
Power Consumption	76 kw	100 kw	153 kw
Production Capacity	120 - 150 kg/h	180 - 240 kg/h	400 - 500 kg/h
Dimension	19000 x 1200 x 2200 mm	21000 x 1500 x 2200 mm	30000 x 3500 x 4300 mm







### Pre-Gelatinized Starch, Modified Starch Production Machinery Line



SP85-II Double Screw Extruder



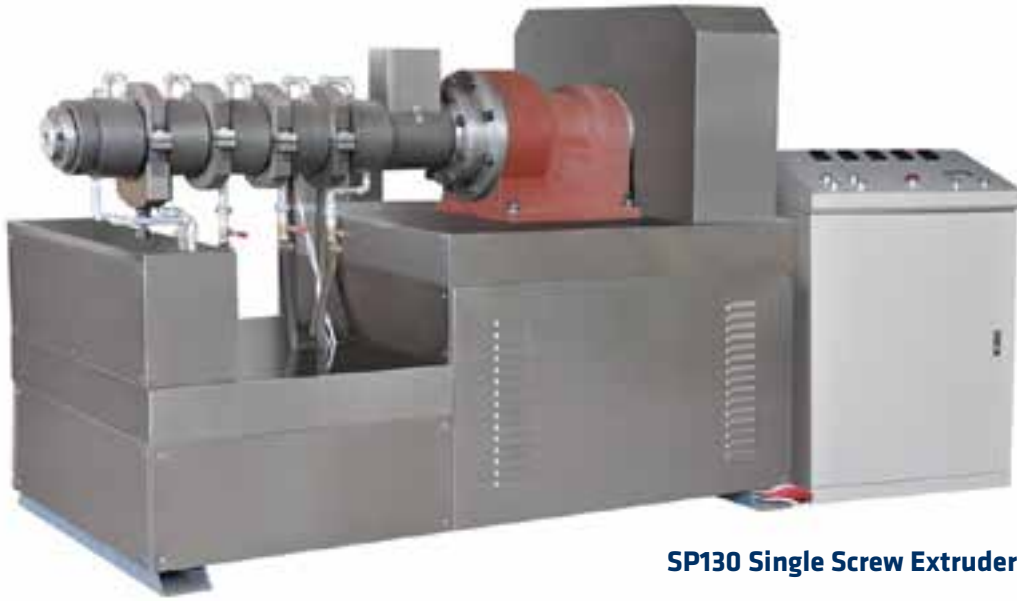
#### Production Line Introduction

Pre-gelatinized starch/modified starch making machine can produce Denatured Starch, Pre-gelatinized starch is an effective and economical fluid loss agent in water based drilling fluids, which is a starch derivative. It is not bacterial degradation when 120°C, environmentally acceptable and non-toxic. Modified Starch can produce a thin, slick, tough filter cake and promotes faster penetration rates with reducer friction. It can be used in all kinds of drilling fluid system. Pre-gelatinized starch is also sometimes “pregelatinized” to make them easier to dissolve during product manufacture. Modified starch is widely used in oil drilling, textile, paper and food industries.

#### Technical Parameter

Model	SP85-II	SP130
Installed Power	145 kw	145 kw
Power Consumption	100 kw	100 kw
Production Capacity	300 - 500 kg/h	400 - 600 kg/h
Dimension	20000 x 2000 x 3500 mm	30000 x 3500 x 4500 mm





**SP130 Single Screw Extruder**





### Reconstituted Rice, Artificial Rice Processing Machinery Line

- 1 Mixer
- 2 Screw Conveyor
- 3 Double Screw Extruder
- 4 Vibratory Cooling Machine
- 5 Air Conveyor
- 6 Dryer
- 7 Cooling Conveyor



#### Production Line Introduction

Turning broken rice into high-quality reconstituted rice. Processing broken rice into grains of rice with specific product characteristic requires state-of-the-art twin screw extruder technology. Sunpring extrusion processes can be used to produce top-quality reconstituted rice indistinguishable from the natural product. Sunpring’s competence is applied to every stage of processing involved in the production of fortified rice: from grinding, blending, conditioning, extrusion and drying through to sifting, storage and packing. Depending on the desired product properties, the precise product-specific extrusion parameters can be determined by the customer. Ground broken rice is transformed in Sunpring’s twin screw extrusion systems into new grains whose appearance is remarkably like that of natural rice. As desired, the reconstituted rice can be fortified via addition of vitamins and minerals. Important properties such as color, form, size and texture as well as cooking characteristics and cooking time can be determined precisely.

Iron fortified rice is extruded fortified with micronized ground ferric pyrophosphate (MGFP) would increase iron stores in children. This is an effective strategy for reducing iron deficiency anemia.

#### Technical Parameter

Model	SP65-III	SP70-II	SP85-II
Installed Power	68,5 kw	96,5 kw	165 kw
Power Consumption	43 kw	60,5 kw	103 kw
Production Capacity	120 - 150 kg/h	180 - 240 kg/h	300 - 400 kg/h
Dimension	18000 x 1200 x 2200 mm	20000 x 1500 x 2200 mm	22000 x 3500 x 4300 mm







### TVP, TSP, Meat Analogue Processing Machinery Line

- 1 Mixer
- 2 Screw Conveyor
- 3 Double Screw Extruder
- 4 Air Conveyor
- 5 Dryer
- 6 Cooling Conveyor



#### Production Line Introduction

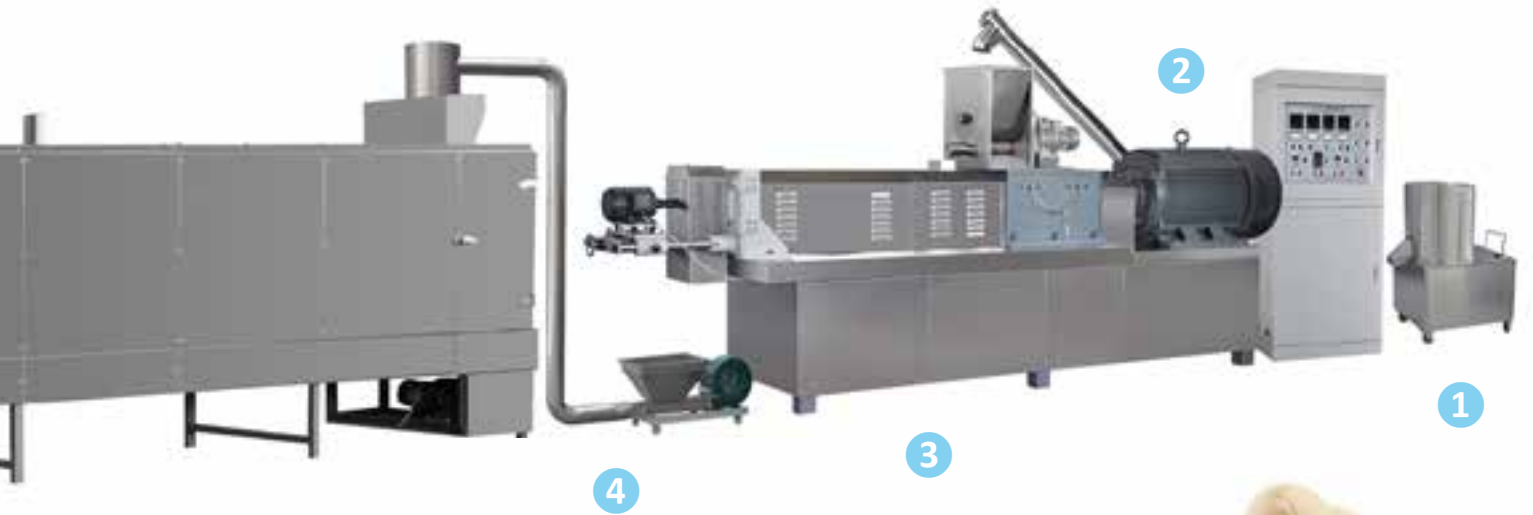
Textured Soy Protein comes from defatted soy flour, which is a byproduct of soybean oil, so it is plentiful in supply. It's also quick to cook and a great source of vegetable protein without all the fat. Textured Soy Protein comes in small dry chunks resembling, well, dried vegetables more than anything, or in a finely-ground form. It's flavorless, but when you rehydrate it and add your own flavors, it makes a great protein-filled addition to many dishes calling for ground meat. Because of its varying texture, it's versatile, and can take on the texture of many meats. For instance, it's excellent in chili, tacos, veggie burgers and soups.

With muscle structure, it has better absorbency and can defend without cholesterol. It can be boiled in high temperature with different tastes, or added into meal product as stuffing. When it's used to replace meat in stews and soups, your family will hardly be able to tell the difference and since you can marinate it in many of the same sauces as meat, it can take on many of meat's flavors.

#### Technical Parameter

Model	SP65-IV	SP85-III
Installed Power	68,5 kw	165 kw
Power Consumption	43 kw	103 kw
Production Capacity	240 - 280 kg/h	400 - 500 kg/h
Dimension	18000 x 1200 x 2200 mm	22000 x 3500 x 4300 mm







### Extruder Machine Systems

Twin screw extruder is suitable for ripening and molding various kind of dog food, aqua feeds, meat analogue etc., and for treating some products which cannot be processed by a single screw extruder are of poor quality thanks to angled steam injector ports oriented in the direction of material flow, along with a unique screw profile that allows steam to be mixed into the product. It can used to produce special dog foods and treats with up to 50 percent fresh meat (as a percent of the dry recipe) and up to 40 percent moisture without changing.

The barrel is a cylinder within which the screw turns with very close clearance. Usually the barrel is hardened to reduce wear, with resistance jacket. The screw is precisely machined often by nitriding treatment, sometimes with varying pitch. Through changing assembly of segments (mixing element, kneading element and steam block), the extruder can meet different products' requirement. The movement of the motor is transferred to the screw with the help of special design gear box to get maximum transmission efficiency even under adverse high-torque conditions. The drive and thrust bearing in gear box is sophisticated. A sump including cooling system is available for the bearings' lubrication and cooling. Extruder is control through an independent control panel.



**SP95-II Double Screw Extruder System**

#### Technical Parameter

Model	SP95-II	SP85-II
Installed Power	98 kw	100 kw
Main Motor Power	90 kw / 110 kw	75 kw / 110 kw
Diameter of Screw	95 mm	85 mm
Capacity	800 - 1200 kg/h	450 - 500 kg/h
Dimension	5000 x 1700 x 2100 mm	4600 x 1100 x 2000 mm





**SP85-II Double Screw Extruder System**

**The extruder is composed of:**

- Feeding system
- Extrusion system
- Cutting system
- Lubrication system

**Features:**

Frequency speed controlling system on main motor, cutter and feeder ensure machine stable performance and saving.

The forced lubrication system, by guaranteed equipment transmission longer life. Oil box is made by 3 mm steel plate. Sealed well tube with 12 mm, can suffer high pressure (300 PSI). Connection manner like clip.

Visible auto-temperature controlling system, make temperature-controlling to be more direct-viewing, parameter to be more precise.

**Extrusion barrel:**

The extrusion barrel is made by 38CrMoAl. The hardness is around HRC60. There are three barrel support, which hold the barrel. The steel plate is 10mm thickness. There are seven(7) steel bars to strength the steel platform and find a wonderful balance between reducer and gear box.

**Feeding hopper:**

The screw feeding hopper is driven by a 0,75 kw motor and the hopper is made of stainless steel. There are 2 mixing agitators in the feeding hopper.

**Extrusion system:**

The extrusion mechanism is driven by a 75.0 kw motor. The jacket and the screw are made of special hardened and tempered steel. The kind and quality of the steel treatment are special to provide more useful life to the parts. The gear in the reducer is made by heating treatment to harder and result by grinding machine, the surface is more smooth and shining.

**Twin-screw:**

Screw is made by special craft by 38CrMoAl excellent material and being Nitriding treatment. Segmented screw is available for special product requirement, including mixing flight, cut flight, kneading element, steam block, etc. There are 2 coupling stick between extruder barrel and gear box, which is protect by the housing coupling stick. The screws with self-cleaning function.

**Cutting system:**

It is a movable cutting system, with steam above exit and a fan for moving moisture above the product box.

**Heating system:**

The band is heated by band heater. Dimension for the band heater is 168\*70 & 198\*110 mm. Band heater is made by stainless steel. Cast aluminum heater also available as options. Water cooling is available when required.



### Series of Extruder Machinery



**SP-TFX Macaroni/  
Pasta Extruder**



**SP70-II Double Screw Extruder**



**SP65-III Double Screw Extruder**



**SP100 Single Screw Extruder**



**SP130 Single Screw Extruder**



**SP76 Rotary Head Extruder**

### Technical Parameter

Model	SP65-III	SP70-II	SP100	SP130	SP-TFX	SP76
Installed Power	34 kw	44 kw	46 kw	75 kw	16 kw	21 kw
Main Motor Power	22 kw	30 / 37 / 45 kw	30 kw	60 kw	15 kw	15 kw
Diameter of Screw	65 mm	70 mm	100 mm	130 mm		76 mm
Capacity	100 - 150 kg/h	200 - 280 kg/h	60 - 100 kg/h	300 - 600 kg/h	100 - 300 kg/h	150 - 200 kg/h
Dimension	2600 x 1100 x 1800 mm	3200 x 1100 x 1800 mm	3200 x 1500 x 1700 mm	3000 x 1000 x 1700 mm	2800 x 1600 x 2200 mm	2300 x 1150 x 2000 mm



## Series of Dryer Machinery



**DKX3 Multi-Layer Electric Dryer**



**OKX3 Multi-Layer Diesel Oil/Gas Dryer**



**Steam Dryer**



### Technical Parameter

Model	DKX3	DKX5	OKX3	OKX5	Steam Dryer / Dryer
Electric/Gas Consumption	28 kw	42 kw	5 - 10 kg/h gas	715 - 20 kg/h gas	12-28 kw power / 100 - 300 kg steam/h
Heating Temperature	~200°C	~200°C	~200°C	~200°C	~180°C
Production Capacity	120 - 180 kg/h	150 - 200 kg/h	150 - 250 kg/h	200 - 500 kg/h	200 - 2000 kg/h
Dimension	5200 x 1250 x 1800 mm	5500 x 1250 x 2200 mm	5800 x 1500 x 2000 mm	8000 x 1500 x 2500 mm	11000 x 1700 x 2200 mm

### Series of Fryer / Flavoring Machinery



**LXY-II Continuous Fryer**



**SGT-II Double-drum Flavoring Line**

#### Technical Parameter

Model	LXY-II	SGT-II
Input Voltage	380 V / 50 Hz	380 V / 50 Hz
Installed Power	60 kw	3,5 kw
Power Consumption	45 kw	1,5 kw
Production Capacity	200 - 300 kg/h	500 kg/h
Dimension	3000 x 1200 x 2500 mm	5000 x 1500 x 2000 mm





**PYJ-III Syrup/ Slurry Sprayer**



**JXJ-II Core Filler**



**TJJ-II Oil Sprayer**



**CXJ Molding Machine**



**QDJ-II Pulling & Cutting Machine**



**Bread Pan Shaper**



### Hammermill & Grinder Machinery Normal Hammermill (First Generation)



#### Introduction:

It is suitable for fine grinding in feed, grain and food industries

- ➔ This Machine can grind granular feed such as maize, sorghum, wheat and beans.
- ➔ Direct driving is adopted, structure is compact and it is convenient and quick to replace the sieve plate.
- ➔ Different feeding type for choosing: self-cleaning impeller feeding or belt magnet removing feeding.

#### Technical Parameter

Model	SFSP56*36	SFSP56*40	SFSP112*30	SFSP112*40
Power (kw)	18.5 / 22	30 / 37	55 / 75	90 / 110
Capacity (ton/h)	2.5~3	4~5	7.5~10.5	12.5~16

Remark: Capacity standart: Raw material is maize, sieve hole size 3.0 mm

## Hammermill & Grinder Machinery Fine Grinder (Second Generation)



### Introduction:

It is suitable for fine grinding in feed, grain and food, environmental protection industries and chemicals industries.

- ➔ Perfect appearance, stable and durable.
- ➔ Environmental protection silencer: The air supplement inside the grinding chamber, the air supplement port and door body are all equipped with silencer.
- ➔ New designed hammer: Multi corner angle, multipoint cutting and grinding, thus grinding efficiency is given full play
- ➔ Cost effective: Small sized multi-chamber screener is easy to replace.

### Technical Parameter

Model	SFSP65*45A	SFSP65*60A	SFSP65*90A	SFSP65*120A	SFSP65*150A
Power (kw)	30 / 45	55 / 75	90 / 132	132 / 185	200 / 315
Capacity (ton/h)	1.7~2.4	3.2~4	5.2~7	7.7~9.8	11.7~16.6

Remark: Capacity standart: Raw material is maize, sieve hole size 0.8 mm





### Hammermill & Grinder Machinery Micro Grinder (Last Generation)



#### Introduction

It is suitable for micro grinding in feed, grain and food, environmental protection industries and chemicals industries.

- ➔ This machine is of no-screen type structure, non-blocking grinding, wind grading and secondary grinding are finished at the same time.
- ➔ Special grinding plate design, which features high capacity, even fineness and low temperature rise.
- ➔ Fineness is adjustable from 30-140 $\mu$ m, special micro grinding can be achieved.
- ➔ Advanced driving system, running is stable, temperature rise of bearing is low, no need to add oil and maintenance is convenient.
- ➔ The hammer head and teeth ring are welded with high quality alloy steel, the useful life of wearing parts is improved gratefully.
- ➔ With special silencer to reduce noise drastically
- ➔ The screw feeder can automatically remove impurities of large specific gravity to ensure normal working machine.

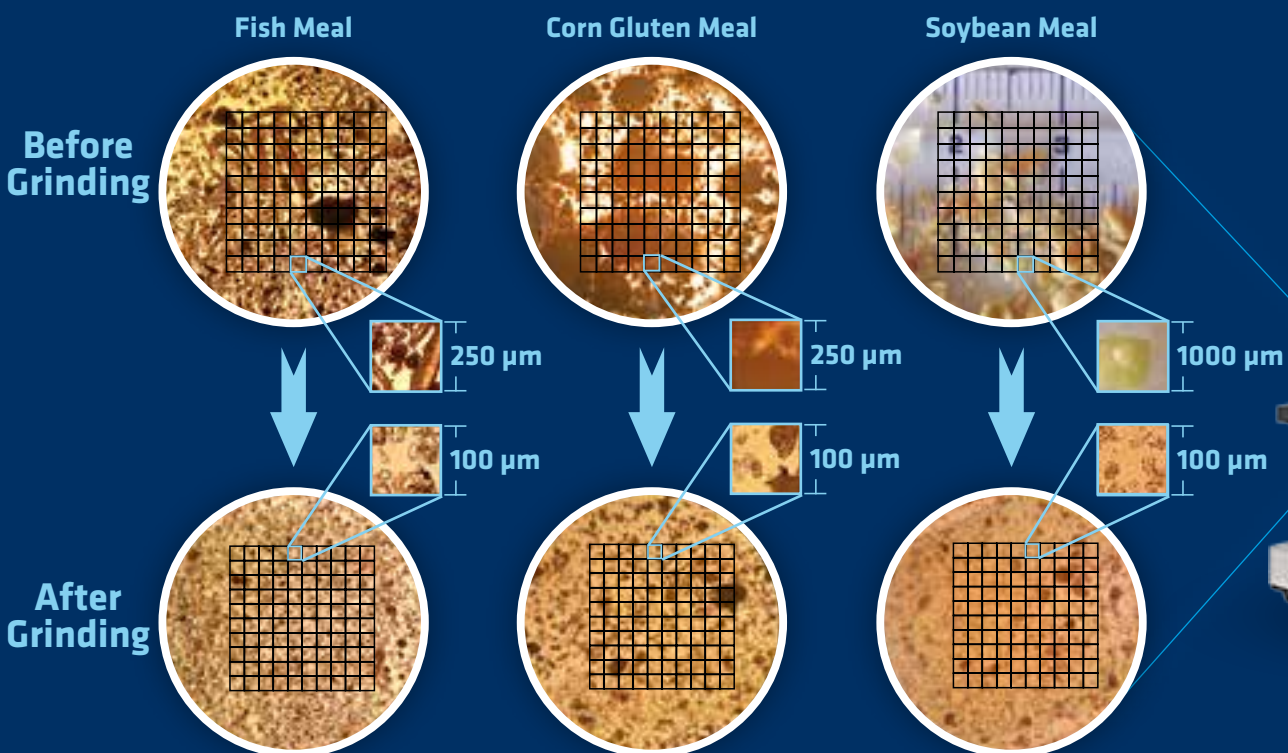
#### Technical Parameter

Model	SFWL82	SFWL110	SFWL130
Power (kw)	55 / 75	90 / 110	132 / 160
Capacity (ton/h)	1.7~2.4	3.2~4	5.2~7

Remark: Capacity standart: Raw material is maize, 80 meshed 95 % sieve through



## Before-after grinding process appearances of some raw materials under the light microscope





### Series of Packing Machinery



**Full Automatic Vertical Granule Packaging Line**

#### Introduction:

- ➔ PLC control with touch panel –step by step instruction.
- ➔ Equipped with servo winding system, pneumatic control system.
- ➔ The maximize to improve the whole machine’s precision, reliability and stability.
- ➔ Use intellectual temperature controller, the high temperature control to ensure the neat sealing.
- ➔ The perfect automatic alarm safety protection, little waste. This machine completes the whole packing procedure of measuring, feeding, bagging, date printing, charging (exhausting), products out-putting. Counting automatically.

#### Technical Parameter

Model	SPK-398	SPK-520	SPK-720
Power Specification	3,0 Kw / 220 V / 50 Hz	3,5 Kw / 220 V / 50 Hz	4,5 Kw / 220 V / 50 Hz
Packing Speed	≤ 45 bag/min	≤ 45 bag/min	≤ 45 bag/min
Pouch Size	L: 100 - 300 mm W: 50 - 200 mm	L: 100 - 350 mm W: 100 - 250 mm	L: 150 - 450 mm W: 100 - 350 mm
Packing Weight	10 - 1000 g	10 - 1000 g	10 - 1000 g
Dimension	1400 x 980 x 1700 mm	1430 x 1200 x 1700 mm	1780 x 1350 x 2000 mm





**Automatic Powder Packaging Machine**



**Automatic Granule Packaging Machine**



**Fast Pillow Packaging Machine**



**Electronic Quantitative Packaging Scales**

## Technical Parameter

Model	SPF-398	SPK-500	SP-350	SP-50
Power Specification	3,0 Kw / 220 V / 50 Hz	2,0 Kw / 220 V / 50 Hz	4,2 Kw / 220 V / 50 Hz	1,1 Kw / 220 V / 50 Hz
Packing Speed	≤ 50 bag/min	25 - 70 bag/min	20 - 200 bag/min	240 bag/min
Pouch Size	L: 100 - 300 mm W: 50 - 200 mm	L: 50 - 160 mm W: 50 - 150 mm	L: 150 - 330 mm W: 100 - 260 mm	Air Source: 0,3 - 0,5 Mpa
Packing Weight	10 - 500 g	50 - 500 ml	10 - 500 g	5 - 50 kg
Dimension	1400 x 980 x 1700 mm	1000 x 800 x 1900 mm	4380 x 880 x 1500 mm	1200 x 700 x 2000 mm



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- ➔ ISO 9001 Quality Management System
- ➔ ISO 14001 Environmental Management System
- ➔ ISO 27001 Information Security Management System
- ➔ OHSAS 18001 Occupational Health & Safety Management Systems
- ➔ ISO 22000 Food Safety Management System
- ➔ OIC/SMIC 1 Halal Food Management System



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- ➔ CFSA(TM) - Food Safety Management Systems
- ➔ (ISO 22000) Specialization: Wine Expert, Olive Oil Expert







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- ➔ Artemia, Algal Products, Rotifer Culture Foods and Enrichment Products
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- ➔ Feed Additives, Natural Feed Additives & Oils
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- ➔ Hatchery Equipments
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- ➔ Oxygenmeters, Temperature, pHmeter, Salinometer
- ➔ Fish Farm Feeder Systems



# Logistics and Supply Services





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