

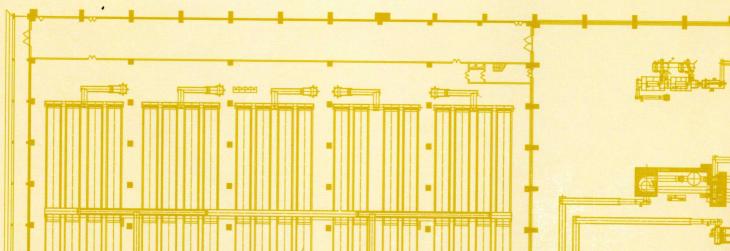
COMPLETE TOBACCO PRIMARY PROCESSING PLANT

Kunming Shipbuilding Equipment Co. Ltd.



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With more than 20 years experience, KSEC already supplied primary processing line with capacity from 3000kg/h to 12000kg/h to over 180 users in the worldwide. And KSEC also can supply pilot line with capacity of 300kg/h to 1500kg/h. The whole producing procedure can be divided into following sections: lamina processing section, cut-lamina processing section, stem processing section, cut-tobacco blending section, burley tobacco processing section. KSEC also can supply casing kitchen.

1. Lamina processing section

This section includes the procedure of bale opening, loosening and conditioning, casing, storing, etc. Flexible carton opening system is used for automatically strap cutting, cover opening and lining board removing of carton and the unpacked carton can be recycled and used. After opening, the lamina bale can be conveyed to traditional slicing and conditioning processing or conveyed to on-line vacuum conditioning system and conditioning cylinder. On-line continuous vacuum conditioning system can decrease degradation, increase temperature and moisture, remove greenish odor and kill insect eggs while ensure continuous and automatic production. Conditioned and cased lamina will be conveyed into pre-blending silo, to blend different origins and grades lamina sufficiently. Foreign matter sorter developed by KSEC adopts optical recognition and digital image processing technology, can detect and remove foreign matters efficiently.

2. Cut-lamina processing section

This section includes the procedure of lamina cutting, constant flow rate control, cut lamina expansion and drying, etc. Cutter adopts AC servo, frequency regulation and fieldbus technology, which can improve the cutting quality and convenient for operation. There are two processing technology for cut-lamina expansion and drying, i.e. traditional expansion + drying cylinder with thermal plate exchanger and new developed fuel oil (gas) pipeline cut-lamina drying plant. It achieve closed-loop control over moisture content via electronic weighing conveyor and moisture meter, which can reduce over drying cut-lamina at the beginning and the end of drying process, and improve the quality of cut-lamina. The fuel oil (gas) pipeline cut-lamina drying system can achieve high expansion, decrease the cut-lamina consumption and reduce tar content. The optimized design can ensure reliable and safe operation.

3. Stem processing section

This section includes the procedure of increasing temperature and moisture, storing, cutting, expansion drying, etc. Stem washing trough plant use the recycle warm water to process stems on-line, which can make stems absorb moisture sufficiently and remove sand, stone, scrap and stem skins. Cut-stem can achieve high expansion and good filling power after expansion and drying. There are two processing technology for cut-stem expansion and drying, i.e. cut-stem expansion tunnel + drying cylinder with plate thermal exchanger and Injection type cut-stem conditioning plant + fluidized bed cut-stem drier.

4. Cut-tobacco blending section

All kinds of cut-lamina, cut-stem, expanded cut-tobacco and reconstitute tobacco will be blended in proportion. The blended cut-tobacco will go through metering and flavoring then conveyed into cut-tobacco silo. Cut-tobacco bin storing system developed by KSEC can combine automatic logistics with primary processing. It can replace bulking silos and suitable for multi-blend, small volume and more flexible.

5. Burley tobacco processing section

It set multi casing application before burley toasting and accelerate the casing liquid absorbing. Burley tobacco toaster has function of keeping humidity and drying. It has wide adjustable range of drying temperature and precise moisture control and high automation.





FT73 Model Carton Opening System

Application:

The product is used in primary processing line for separating lamina bale from its packing carton. After that, the lamina bale will be conveyed to the primary processing line while empty carton will be conveyed out then folded, overlapped and stacked separately.



Features:

- Adoption of pneumatic control technology for carton clamping then separate lamina bale while clamping and lifting carton.
- No damage to cartons for recycling use with unique technique during opening.
- Combination of multiple single machines with unitary functions to release, over-sleeve, fold, overlap and stack up empty cartons.
- Adoption of pneumatic system for most actions with low noise and non-pollution.
- Equipped with individual switch cabinet adopting field bus technology, distributed control of PLC and I/O ensuring easy operation.



- Rated capacity: 48 cartons/h
- Suitable for 200kg carton, C48 carton







WZ100 Series of On-line Vacuum Conditioning System

Application:

This product is used in primary processing line for continuous and automatic vacuum conditioning of lamina split by lamina slicer. It can increase moisture and temperature of lamina and thus improves the tenacity and anti-breakage property of lamina, and improve the taste of finished cut-tobacco, benefit for absorption of sugar and flavoring liquid in casing and flavoring application. Besides, it can remove greenish odor from lamina and kill insects to some extent.

Features:

- It can connect with automatic bale opening system, automatic bale turnover and boxing system and automatic slicer for achieving fully auto and continuous processing.
- On-line and continuous processing, thus reduce quality fluctuation due to manual interference and greatly decrease labor cost.
- With movable sealing conveyor inside the chamber.
- Adoption of multiple modes such as one set (or two sets) of evacuation system for one (or two) chamber(s) for evacuation by turns as demand.
- Friendly human-machine interface rich in functions and malfunction self-diagnostic function.

- Rated capacity: 1200~9600kg/h
- Final vacuum: ≤666Pa
- Working vacuum: ≤1066Pa
- Temperature of lamina after conditioning: 55~80°C
- Increase of moisture content after conditioning: $3\% \pm 1\%$
- Conditioning efficiency: ≥95%
- Batch processing time: \leq 30min









FT623/FT624 Vertical Lamina Slicer

Application:

This product is used in slicing and conditioning sub-line of tobacco primary processing line for evenly slicing of lamina bale knife by knife, so as to make the lamina easy to be processed in lamina conditioning cylinder.

Features:

- With material pushing device controlled by angle encoder driving by motor as advance and driving method of lamina bale during slicing procedure, getting more precise slicing.
- The discharge of the sliced lamina block is accomplished by the coordination of material turning device, material blocking device and material guiding device, in which the material turning device adopts upper swing type, the sliced lamina block slid out the slicing position for purpose of reducing impact to equipment.
- Nice appearance and reasonable structure.

- Rated capacity: 9600kg/h (calculated as 200kg/bale, 50 kg/each sliced lamina)
- Stroke of slicing knife: 900mm
- Cutting knife width: 1100mm







FT65 Series of Vertical Lamina Fork Slicer

Application:

This product is used in lamina vacuum conditioning sub-line of tobacco primary processing line for slicing lamina bale as tier into several blocks and with some distance between them in the packing box. As the result, the core of lamina block is easy to be conditioned sufficiently in vacuum conditioning plant.

Features:

- With unique slicing method inside the packing box, not only meeting the processing requirement of vacuum conditioning plant but also resulting in less degradation.
- Vertical tiered slicing along the layer of lamina bale, with less move-down resistance and less wearing-out of knife so as to prolong the service life of knife.
- Knife being single-slice shape, four knives as one group, easy removal and convenient maintenance.
- Two groups of knife cutting down simultaneously to increase efficiency.
- Gear motor for driving knife move down, with good synchronism. Gear motor with braking to prevent knife from dropping in case of power-off. Move-down speed of knife is adjustable through frequency inverter. Braking resistance with over-heat protection.
- Slicing knives are driven by air cylinder, featuring simple and reliable action and compact structure.
- Two lamina bales packed in one iron box for slicing, so as to meet the requirement of large-flow primary processing line.

- Rated capacity: 9600kg/h~16000kg/h, with two lamina bale in one box
- Effective width of roller conveyor: 1450mm
- Feeding height of roller conveyor: 600mm
- Knife width: 100mm
- Quantity of knife: 8~13pcs









WQ37A~WQ318B Series of Lamina Conditioning Cylinder

Application:

This product is used in tobacco primary processing line before cutting process for increasing temperature and moisture of the lamina, which can improve the tenacity and processing durability of the lamina. In this way, technological requirement for lamina cutting can be met.

Features:

- Frequency conversion speed regulation for the rotation of the cylinder.
- Rotary filtering screen with brush roller and hot water cleaning is set at upward side of material discharging chamber. It is convenient to clean the rotary filtering screen.
- Auto control over casing application, temperature and moisture content. The parameters of running status, such
 as flow rate of moisturized water, flow rate of casing liquid, hot air temperature, and rotary speed of cylinder,
 etc. can be centralized monitored and controlled.
- Cylinder with auto jacking-up device for option, for purpose of convenient maintenance and reducing compression against support roller during downtime.

- Rated capacity: $1600 \text{kg/h} \sim 9600 \text{kg/h}$
- Output temperature: $40^{\circ}\text{C} \sim 45^{\circ}\text{C}$
- Increase of lamina moisture content: $1\%\sim3\%$ (set as per users' requirements)







WQ33 Series of Lamina Conditioning Cylinder

Application:

This product is used in front section of tobacco primary processing line for processing tobacco materials like tobacco lamina after threshing and redrying, Burley tobacco lamina, reconstituted tobacco, sun-cured tobacco and Oriental tobacco lamina. It loosens the lamina block into lamina and increase temperature and moisture of the lamina, which can improve the tenacity and processing durability of the lamina. In this way, requirements of the subsequent technological procedure can be met.

Features:

- Design with features of energy saving and safe operation.
- Cylinder and material discharging chamber with heat insulation cover for reducing heat loss. Drawing type filtering screen or rotary filtering screen is set at upward side of material discharging chamber for option.
- Auto control over temperature and moisture content.
- High level of safety and maintainability, there set limit switch and isolating switch at unmindful places for ensuring safe, convenient and quick operation and repair for the equipment.
- Cylinder with auto jacking-up device for option, for purpose of convenient maintenance and reducing compression against support roller during downtime.

- Rated capacity: 640kg/h~9600kg/h
- Output temperature: $60^{\circ}\text{C} \sim 75^{\circ}\text{C}$
- Maximum increase of lamina moisture content: 10%
- Lamina loosening rate: ≥98%







WQ373~WQ3324 Lamina Conditioning & Casing Cylinder

Application:

This product is used in slicing and conditioning sub-line of tobacco primary processing line for loosening, conditioning and casing of tobacco lamina after slicing, which can improve the tenacity and processing durability of the lamina, and improve the flavor of the lamina as well. In this way, requirements of the subsequent technological procedure can be met.

Fe

Features:

- Frequency conversion speed regulation for the rotation of the cylinder.
- With hot circulating air system for purpose of increasing temperature of lamina inside the cylinder, good for lamina to absorb moisture and casing liquid, and improve looseness of lamina and evenness of casing application.
- Rotary filtering screen with brush roller and hot water cleaning is set at upward side of material discharging chamber. It is convenient to clean the rotary filtering screen.
- Auto control over casing application, temperature and moisture content. The parameters of running status, such
 as flow rate of moisturized water, flow rate of casing liquid, hot air temperature, and rotary speed of cylinder,
 etc. can be centralized monitored and controlled.
- High level of safety and maintainability, there set limit switch and isolating switch at unmindful places for ensuring safe, convenient and quick operation and repair.
- Cylinder with auto jacking-up device for option, for purpose of convenient maintenance and reducing compression against support roller during downtime.

- Rated capacity: 640kg/h~9600kg/h
- Output temperature: 60°C~75°C
- Casing ratio: 1.25%~5% (set as per users' requirements)
- Maximum increase of lamina moisture content: 10%
- Lamina loosening rate: ≥98%
- Specification of casing tank: 30L~1000L (designed as per users' requirements)







SJ1 Series of Casing Cylinder

Application:

This product is used in lamina processing sub-line, Burley tobacco processing sub-line and stem processing sub-line of tobacco primary processing line for casing application and increasing temperature and moisture content of tobacco lamina, Burley tobacco lamina, stem and cut-stem, which can improve taste of cigarette and physical property of tobacco material, so as to meet the technological requirement of tobacco primary processing.

Fe

Features:

- -Frequency conversion speed regulation for the rotation of the cylinder.
- With hot circulating air system for purpose of increasing temperature of lamina inside the cylinder, good for lamina to absorb casing liquid, and thus improve the taste of tobacco leaves.
- Rotary filtering screen with brush roller and hot water cleaning is set at upward side of material discharging chamber. It is convenient to clean the rotary filtering screen.
- Auto control over casing application, temperature and moisture content. The parameters of running status, such as flow rate of casing liquid, temperature and indicating level of casing liquid, hot air temperature, and rotary speed of cylinder, etc. can be centralized monitored and controlled.
- Multiple-point spraying system for option so as to increase evenness of casing application.
- Cylinder with auto jacking-up device for option, for purpose of convenient maintenance and reducing compression against support roller during downtime.

Tee

- Rated capacity: 800kg~9600kg/h
- Output temperature: (40~65)°C
- Casing ratio: 1.25%~5% (set as per users' requirements)









WQ3 Series of Stem Conditioning Cylinder

Application:

This product is used in the stem processing line for increasing temperature and moisture content of stem to improve its physical property to meet the subsequent technological requirement.

Fe

- Cylinder and discharging chamber with insulating cover to decrease heat loss.
- Auto control over temperature and moisture content.
- High level of safety and maintainability, there set limit switch and isolating switch at unmindful places to ensure safe, convenient and quick operation and repair.

- Rated capacity: 750kg/h~3000kg/h
- Inclined angle of cylinder: 3°
- Output temperature: $40^{\circ}\text{C} \sim 50^{\circ}\text{C}$, deviation: $\pm 5^{\circ}\text{C}$
- Increase of moisture content: 8%~10%







WQ83 Series of Stem Washing Trough Plant

Application:

This product is a special plant used for cleaning dirt and direct conditioning for stem in stem processing sub-line in the front section of tobacco primary processing line. It mainly cleans the stem and removes mud and sands by using circulating water with constant temperature, and remove the stones and metals contained in the stem as well as conditioning the stem, makes the stem clean, soft, moisture penetrated after storage. As the result, the good technological conditions can be provided for stem cutting and expansion.

Features:

- Simple structure, high automation and convenient maintenance and operation.
- With flexible material discharging method, by mesh belt conveyor or vibratory sieving conveyor.
- Foreign matters such as sands, stones and metals can be removed effectively, so as to protect knife of cutter, greatly prolong the service life of cutting knife.
- After storage, the washed stem will get even water penetration, softness, cleanness and purity, good color and luster, without darkness, with even stem cutting, and with less dust arising from expansion system.

- Rated capacity: ≤4000kg/h
- Increase of stem moisture content: ~17%
- Output temperature: room temperature~60 $^{\circ}\mathrm{C}$







WQ2 Series of Spiral Stem Conditioning Tunnel Plant

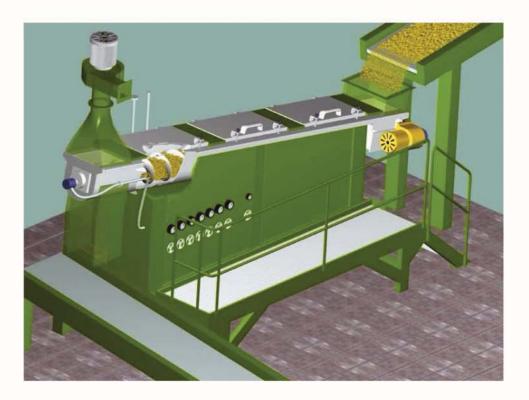
Application:

This product is used in the primary processing line for increasing temperature and moisture content of stem, so as to meet subsequent technological requirements.

Features:

- Adoption of spiral conveying and stem steaming structure.
- Rapidly increasing temperature and moisture content of stem.
- With simple structure, less floor occupying and low energy consumption.

- Rated capacity: 1250~2000kg/h
- Increase of output moisture content: $\sim 3\%$
- Output temperature: $(70~85)^{\circ}$ C







WQ7 Series of Conditioning Tunnel Plant

Application:

This product is used in the tobacco primary processing line for increasing temperature and moisture content or performing expansion of lamina, cut-lamina, stem, cut-stem, improving filling power of cut-lamina and cut-stem, and increasing moisture content and temperature of lamina and stem, so as to meet technological requirements of subsequent procedures.



Features:

- Cover plate adopts pneumatic spring mode, featuring simple structure and convenient maintenance. Cover opening hinge is adjustable.
- Steam-water mixed station in steam pipeline, for purpose of making cleaning water to be hot, so as to eliminate heat expansion cold shrinkage which will influence the trough body.
- With advantages of high efficiency, small floor occupancy, reliable and simple operation, convenient repair, being not pollution on the environment.



Technical Specifications:

- Rated capacity: 300~6400kg/h
- Width of Trough body: 390~1000mm
- Cut-stem conditioning: Temperature of output cut-stem: ≥90°C

Moisture increase: 2~3%

- Cut-lamina conditioning: Temperature of output cut-stem: 70~90°C

Moisture increase: 1~3%

- Stem conditioning: Temperature of output stem: $70{\sim}90\,^{\circ}\text{C}$

Moisture increase: 6~9%,

- Stem steaming: Temperature of output stem: 80~90°C

Moisture increase: 2~4%

- Lamina conditioning: Temperature of output lamina: $50{\sim}60\,^{\circ}\text{C}$

Moisture increase: 2~3%







WQ61~WQ656 Jet-Type Cut-Stem Conditioning Plant

Application:

This product is used in the stem processing sub-line of tobacco primary processing line for increasing temperature and moisture content and expansion of cut-stem, and improving filling power and quality of cut-stem. It can work together with cut-stem fluidized bed drier or CRS puffing tower.

Features:

- Small size, low energy consumption, simple structure, good expansion results, with obvious effects of improving cut-stem quality.

- Rated capacity: 375~2000kg/h
- Moisture content of input cut-stem: 35%~38%
- Increase of moisture content: 1~2%
- Output temperature: ≥60°C







SY1、SY2 Series of Stem Flattener

Application:

This product is mainly used in the tobacco primary processing line and placed before stem cutting procedure in the stem processing sub-line for flattening steamed stem, so as to meet technological requirements of stem cutting.

Features:

- Flattening roller made of alloy cast iron and with hard surface and long service life.
- Equipped with small hydraulic pump station individually, for providing compacting force for the flattening rollers and for achieving automatic control over abnormal operation mode.
- Two groups of disk spring at two sides of machine frame for providing compacting force as demand.
- Photoelectric sensors for detecting material overload.
- With function of flattening roller cleaning.

- Rated capacity: $750\sim2000$ kg/h (calculated on the basis of flattening rollers working gap being 1.5mm and stem MC being 12%)
- Thickness of stem chip: 0.6~2.5mm (adjustable)
- Breakage ratio of stem chip: $\leq 3\%$





SQ21/SQ31 Series of Tobacco Cutter

Application:

This Product is used for cutting lamina or stem into cut-lamina or cut-stem with required width. The cutting width can be easily adjustable within the range of 0.1~3mm.

Features:

- The knife drum and conveying chain are driven respectively by high-performance AC spindle motor and servomotor and adoption of closed-loop vector drive, AC servo control and field-bus technologies, which make precise and fost control of speech noiso between knife drum and conveying chain and fostures low inertia, quick response, high stability, and high control precision. As the result, the adjustment of cutting width on he more convenient, more simplified, more precise and more reliable.
- Lifting of upper mouthpiece and upper conveying chain is driven by pneumatic. Single pneumatic cylinder and mechanical synchronizing mechanism for maintaining the pressure at both ends of the upper mouthpiece, which features simple structure, reliable running, low noise and non-pollution.
- Pressure of mouthpiece is regulated by electrically-controlled pneumatic proportional reducing valve, through
 the displaying device, the compression pressure of mouthpiece pressure can be adjusted precisely, and centrolized
 control can be achieved easily.
- The elevating of upper mouthpiece and upper conveying is through crank-guided swing mechanism which can keep the distance constant between moving edge of the upper mouthpiece and the rotating track of the cutting knifes blade. As the result, cutting width is even.
- Overload protection device set on sprocket for driving upper and lower conveying chains. In case of overload, safety pin cuts off and the cutter will be stopped to ensure the safety of the cutter.
- Knife advance adopts worm gear, worm, gear and connection rod swing mechanism. Knife advancement is adjustable.
- Grinding reciprocating speed, grinding wheel advance and rotary speed of knife drum to be in direct ratio.
 Grinding wheel advancement is adjustable.
- Operating control panel adopting movable hanging type touch screen for convenient operation.





SQ21/SQ31 Series of Tobacco Cutter

Technical Specifications:

Model	Cutting Width (b), mm	Rated Capacity, kg/h	Rotary Speed of Knife Drum, r/m	Mouthpiece openness, mm	Mouthpiece width, mm
		Lamin	Cutter		
NQ411	0.3~1.5	800	150~600	15~50 30	
SQ311, SQ211B	0.3~1.5	2400	150~600	20~80	400
SQ313, SQ213B	0.3~1.5	4000	150~660	65~125	400
SQ315, SQ215B	0.3~1.5	4800	150~660	65~125	400
SQ317, SQ217B	0.3~1.5	6400	150~660	65~125	400
SQ219C	0.3~1.5	9600	150~600	100~160	510
		Stem	Cutter		
SQ312, SQ212B	0.1~0.5	750	150~600	20~80	400
SQ314, SQ214B	0.1~0.5	1000	150~660	65~125	400
SQ316, SQ216B	0.1~0.5	1250	150~660	65~125	400
SQ318, SQ218B	0.1~0.5	1500	150~660	100~160	400
SQ218C	0.1~0.5	2000	150~600	100~160	510







Knife Grinding Device & AC Spindle Motor





SH6 /NH1 Series of Cut-tobacco Drying Cylinder with Plate Thermal Exchanger

Application:

The product is used in tobacco primary processing line for quick drying of cut-lamina or cut-stem at high temperature, which can remove greenish odor and free nicotine. As the result, the taste of cut-tobacco becomes mild and rich in aroma and flavor. The quick drying process can result in good cut, looseness, and improve filling power of the cut-lamina or cut-stem.

Features:

- With adjust and control range of 0.5-1.1 times of rated capacity based on keeping existing machine size.
- Free adjustment of hot air temperature within the range of room temperature $\sim\!140\,^\circ\!\text{C}$.
- Single hot-air flow direction changed to be multiple: concurrent, countercurrent, and concurrent / countercurrent with automatic changeover for option, so as to meet user's personal demand on special technology process.
- Alternative two control modes on user's special technology process for option:
- a) Control over temperature of thermal exchanging plate (regulating temperature of inner wall of cylinder for controlling output moisture content and temperature etc. while keeping constant hot air parameters).
- b) Control over parameters of hot air (regulating parameters of hot air for controlling output moisture content and temperature etc. while keeping constant temperature of inner wall of cylinder).
- Solution for reducing over-drying phenomenon at the beginning and the end of drying process. Adaptive timevariable moistness field at the rear part of cylinder for further reducing amount (below 0.5% per batch) of overdrying cut-tobacco.
- Changing the inclined angle of Rake-plate for thermal exchanging to increase area of heat radiation surface and reduce falling height of cut-tobacco, resulting in less degradation and increasing drying strength.
- Changing thermal exchange plate's steam flow inside cylinder for better thermal field distribution and thermal stress inside.







- Intelligent control over both process parameters and output parameters.
- Intelligent expert system is set as per process parameters and output parameters to meet requirement of batch processing.
- Cylinder with auto jacking-up device for option, for purpose of convenient maintenance and reducing compression against support roller during downtime.

- Rated capacity: for cut-lamina: $300 \text{kg/h} \sim 6400 \text{kg/h}$
 - for cut-stem: 270kg/h~3000kg/h
- Output moisture content: 11%~14% (set according to technological requirements), with deviation of ±0.5%;
 Output temperature(set according to technological requirements):
- for Grade A and Grade B tobacco: 50°C ~60°C;
- for others: 55°C ~65°C







SH8 Series of Cut-stem Fluidized Bed Drier

Application:

This product is used in cut-stem processing sub-line in cigarette factory for purpose of achieving online expansion, drying and shape-forming of cut-stem.



Features:

- With high filling power: ≥6.5cm3/g for superior cut-stem.
- With even output moisture content: deviation \leq 1% along the material flow direction.
- Good processing durability of cut-stem after expansion, drying and shape-forming.
- With rational structure of air stream distributing device, resulting small output moisture deviation along the width direction of material flow.
- The hot air is blowing from the bottom up, good for spread and expansion of cut-stem.
- The moisture content of hot air is adjustable. As to high grade cut-stem, excessive losses of aroma can be avoided, scorched odor can be reduced as well.
- Adoption of circulating air, low energy consumption.



- Rated capacity: 1500kg/h, 2000kg/h
- Moisture content of output cut-stem: (12~14)% \pm 1% (set as per users' requirements)
- Temperature of output cut-stem: (55~65) $^{\circ}\!\text{C} \pm 5 ^{\circ}\!\text{C}$









SH9 Series of Fuel Oil (Gas) Pipeline Cut-Tobacco Drying Plant

Application:

This product is used in the tobacco primary processing line for quick expansion and drying of cut-lamina inside the sealing pipeline after direct acting with over-heat steam, so as to achieve high filling power of cut-lamina. It can remove greenish odor from cut-lamina, improve taste, color and luster of cut-lamina and thus improve the quality of cigarettes. It can effectively reduce tar content in cigarette as well.

Features:

- Adoption of airflow drying and analogue load technology for reducing the over-drying phenomenon at the beginning and the end of cut-tobacco drying process.
- Drying and expansion in oxygen free or low-oxygen environment, avoiding browning of cut-lamina.
- Drying at high temperature (over 300°C), high cut-lamina expansion rate (up to 20%~30%).
- Expansion and drying field being of vertical and uplifted pipeline, ensuring cut-lamina free of external force, thus getting high full cut-tobacco ratio.
- Expansion and drying pipeline adopts finite element analysis over the flow field, optimizing the section dimension, thus ensure output moisture content even ($\pm 1\%$).
- With material loosening device at the feeding end, ensure loosening and no lump of cut-lamina after expansion.
- With visualized and easy-to-understand control system, featuring simple and reliable operation.



Technical Specifications:

- Rated capacity: 2400~6400kg/h







SL1 Series of Cut-tobacco Fluidized Bed Cooler

Application:

This product is used in cut-lamina processing sub-line or blended cut-tobacco processing sub-line of tobacco primary processing line for quick cooling, curling and shape-forming of dried cut-lamina or blended cut-tobacco. It is good for improving filling power and dust removing.

Features:

- -With even cooling effect along both the material flow direction and width direction for cut-lamina (or blended cut-tobacco).
- Good for improving filling power after cooling.
- Less degradation.
- Low energy consumption and low noise, no pollution on the working environment.

- Rated capacity: 800kg/h~6400kg/h
- Temperature of output cut-tobacco: ≤ room temperature + 7°C
- Noise level: ≤85dB(A).







YA63 Series of Cut-stem Pneumatic Classifier

Application:

This product is mainly used in tobacco primary processing line for pneumatic classifying the dried cut-stem and remove un-cut stem and other impurities from the cut-stem. As the result, the purity of cut-stem is improved and thus the quality of cigarette is improved.

Features:

- Pneumatic classifying chamber consists of dodge gate, glass view window and cone cylinder, featuring compact and simple structure and appearance.
- Dodge gate is convenient for repair and maintenance, through the glass view window, pneumatic classifying effect of cut-stem and discharging of stem slivers can be viewed at any moment.
- Material thrower driven by manual stepless variable-speed motor, for purpose of adjusting material throwing speed flexibly.

- Rated capacity: 500kg/h~2000kg/h
- Purity ratio of cut-stem after pneumatic classifying: ≥99%
- Moisture content of input cut-stem: 13%
- Total pressure loss: 600Pa









SJ2 Series of Flavoring Cylinder

Application:

This product is used in Burley tobacco processing sub-line, stem processing sub-line and blended cut-tobacco processing sub-line of tobacco primary processing line for top flavoring of Burley tobacco lamina, cut-stem and blended cut-tobacco, which can improve taste and flavor of cigarette, so as to improve cigarette quality and thus meet the technological requirement of tobacco primary processing.

Features:

- Frequency conversion speed regulation for the rotation of the cylinder.
- Rotary filtering screen with brush roller is set at upward side of material discharging chamber. It is convenient to clean the rotary filtering screen.
- Auto control over flavoring application.
- Multiple-point spraying system for option so as to increase evenness of flavoring application.
- Cylinder with auto jacking-up device for option, for purpose of convenient maintenance and reducing compression against support roller during downtime.



- Rated capacity: 800kg~16000kg/h
- Flavoring ratio: 0.2%~1% (set as per users' requirements)







SJ4 Model Casing Kitchen

Application:

This product is used for preparation, storing, supplying, conveying and casing of sugars and flavors on site, so as to meet requirement of sugars and flavors for lamina, stem, Burley tobacco, and blended cut-tobacco processing in primary processing line.

Features:

- Utilized in preparation, storage, auto cooking (heating and insulating), mechanical stirring and level detecting of sugars and flavors
- With weighing module, thus automatically conveying raw material to preparation tanks for preparation of various sugar and flavor liquid so as to ensure accuracy of preparation.
- Automatic conveying prepared sugar and flavor liquid to different points on-site for casing and flavoring application.
- Electrical control system for generating and managing data like formula blending and so on. Auto control over sugar and flavor preparation, material preparation check for storage and supply, raw material preparation, storage and conveying. It has functions of production operation management, system status monitoring, system operation management, system comprehensive information management, and system fault handling etc.

- Sugars liquid processing capacity: ≥3000kg/h
- Flavors liquid processing capacity: ≥1500kg/h
- Raw materials blending error: ≤1%
- Hot-water temperature for preparation and cleaning: $40{\sim}100^\circ\!C$, accuracy $\pm\,3^\circ\!C$
- Liquid temperature of heating, insulating and cooking tank: $40\sim100\,^{\circ}\mathrm{C}$, accuracy $\pm\,5^{\circ}\mathrm{C}$
- Liquid temperature of preparation tank: $40{\sim}100\,^{\circ}\text{C}$, accuracy $\pm\,5\,^{\circ}\text{C}$
- Holding capacity of heating and insulating tank: 300~1500L
- Holding capacity of normal temperature tank: 100~1500L (optional)
- Quantity of tanks: tailor-made









SB1A Series of Burley Toaster

Application:

This product is used in Burley tobacco processing sub-line for toasting cased Burley tobacco lamina, its function is to perform continuous technological process of drying, cooling and conditioning of Burley tobacco lamina, remove the excessive moisture content in the Burley tobacco lamina. In this way, the greenish odor and ammonia in the Burley tobacco lamina is evaporated with moisture to some extent, and a series of chemical reactions of Burley tobacco lamina under certain temperature and humidity environment can be realized as well. As the result, the quality of Burley tobacco lamina can be improved.

Feature

- -This product consists of conveying section, drying section, cooling section, sampling room, conditioning section, damp exhaust system, material feeding end, materials delivery end and electrical control system.
- All inner surfaces of all chambers and all circulating fans in chambers made of stainless steel.
- The conveying mesh adopts side-chain driven structure and hinged with stainless steel perforated plate with kidney-shaped holes.
- With function of controlling ambient temperature and humidity during Burley tobacco processing so as to bring chemical reactions which are beneficial to improve ingredient of interior tissue of Burley tobacco by controlling technological conditions like hot air temperature and ambient humidity during drying process, finally bring substances favorable for improving quality of Burley tobacco. In this way, the taste of cigarette can be improved and become pure, the aroma and taste can also be improved as well. As the result, the quality of American blended type cigarette can be improved.
- Automatic alarming devices at drying, cooling and conditioning section respectively.
- The motors of main drive, high-pressure water pumps, and the first and last chamber of the conditioning zone adopt frequency conversion speed regulation.







FT431~438 Series of Foreign Matter Detector

Application:

The system is one kind special equipment integrated with optics, mechanics, electronics and pocumatics. It odopts various technologies, roats technologies, roat-leime control technology, critical intelligence technology and advanced mechanic structure technology. It is mainly used in lamina and stem processing sub-line of primary processing line or in the tobacco threshing & redying line, for removing various foreign matters mixed among the tobacco such as just estimps, form-use plastic film, metals, plastics, feathers, leather strips, pepers, molded tobacco leaves, etc., thus efficiently improve the quality of eigenrette.

Features:

- High-speed belt conveyor adopts air pressure stabilizing system to ensure materials stable during detecting and removing process. Automatic real-time belt off-tracking supervision and correction, alarm and machine stoppage in case of off-tracking of belt, which effectively improving belt running stability and reliability.
 Embedded FPGA+DSP image processing system to ensure real-time of system.
- Unique ionic air knife technique which can make sure that view window be cleaning sufficiently.
- Visual cubinet to be equipped with double air conditioners for cooling separately its top and bottom chambers.
 Material is isolated from optical and electronic system to avoid dust interference. Good sealing of cabinet to prevent tobacco materials and scrops from entering.
- Stable and reliable high-bright LED source and brightness closed-loop control technology to ensure over 30000
 hrs of stable working. Our patented self-luminous background technology for fully eliminating image shadowing.
- CCD linear array comero with first-class prism beam splitter and professional optical lens to ensure vivid and natural imaging and its minimum resolution can be up to 0.36mm. It also have super color identification ability which can resolve 2th different colors (16.67 million colors).
- Unique one-button intelligent formula leaning function.



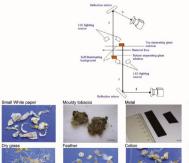




Stable optical system which can prolong lasting time of formula to be over one month, greatly reduce maintenance time of formula.

- Supervisory software developed by us with copyright with tailor-made functions, simple to operate and easy to learn.
- Precise removing technology. Spot-on rejection with control range of less than 10mm per dotting width ensuring rejection error rate < 0.5%. High-speed and large volume rejecting valve which can blow off big size foreign matters.
- High-bright 17" LCD touch screen with mouse, keyboard.
 - Gentle handling without degradation to tobacco.
- Made entirely of high-strength stainless steel framing, fully up to food grade requirements.

- Rated capacity: 3000kg/h to 12000kg/h
- Belt speed: 5~7 (variable via frequency inverter)
- Minimum resolution size: 0.36mm
- Comprehensive foreign matters rejecting rate: \geq 90
- Rejecting error rate: < 0.5
- Total number of recognizable colors: 16.77 million (2 $^{\rm 16}$
- Detectable foreign matters: molded tobacco, plastics, paper, black rubber, cellophane, jutes strings, linear objects, non-tobacco matters of varied makeup etc. Ensured rejection of rubber nubs in black, red, yellow, green, and sponge, carron board, various plastics.
- Rejecting rate of typical foreign matters>90%, typical foreign matters include black rubber, foreign matters in square or cube shape with sides approx. 12.7mm long.



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SF145 Rotary Drum Type Cut-Tobacco Pneumatic Conveying & Distributing System

Application:

The product is used to evenly feed the cut-tobacco discharging from silos to correspondent eigarette maker while conveying the dust contained air stream to dust remover for central dust collection. Suitable for cut-tobacco pneumatic feed to eigarette makers with varied speeds, and each cut-tobacco pneumatic feeder can be equipped with 3 to 6 feeding pipes to as per the speed of correspondent eigarette maker.

Features:

- One to one feeding: each cut-tobacco feeding bin correspond to one outlet port, which can avoid cut-tobacco panic grabbing. Less unnecessary mechanical stirring for greatly reducing cut-tobacco degradation.
- Flexible feeding pipes with automatic switching valves for achieving supply of cut-tobacco from random silo to random eigerette maker, which is quite convenient for the production dispatching and enhances yield of the existing facilities.
- Cut-tobacco feeding parameters of each feeding channel can be adjusted separately:
- a) Continuous regulation of air speed within 10~20m/s range.
- b) Conveying ratio between material and air speed is adjustable, which can feed cut-tobacco at low air speed with large conveying ratio.
- c) Equipped with auto adjusting device for air flap and flow meter for auto, timely and accurate adjusting for air volume and air pressure inside the pipeline network, so as to realize cut-tobacco feeding at optimized air speed for each pipe.
- -Advanced control technology, HMI for monitoring and controlling feeding process parameter and feeding pipe network configuration, automatic control over mechanical faults solving and modular control of feeding assignment.







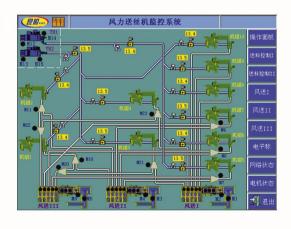


Technical Specifications:

- Max. capacity per pipe: 840kg/h

Quantity of cut-tobacco feeding pipe:	3 pipes	4 pipes	5 pipes	6 pipes
Actual capacity, kg/h per pipe:	840	600	510	420
Suitable for makers speed, pc/min:	14000	10000	8500	7000

- Degradation: ≤2.5%, for conveying distance≤100m
- Loss of moisture content: $\! \leq \! 0.5\%$, for conveying distance $\! \leq \! 100m$
- Max. conveying distance: \leqslant 120m, with maximum 10m for height





Silo

Application:

This product is used in primary processing line or tobacco threshing and redrying line for storing and blending evenly of various materials, such as tobacco leave, lamina, cut-lamina, stem and cut stem. It is also good for tobacco materials to absorb sufficiently easing liquid and can balance production rhythm of the whole processing line.

Features:

- With various structures for option: normal silo, nose to nose silo, double-deck silo, double-deck nose to nose silo, silo discharging from both sides, silo feeding from both sides.
 - Two distributing mode: distributing line by line, distributing pile by pile.
- Side walls, head section and rear section to be made of stainless steel with big size and mirror surface, which feature nice appearance, anti-rust and easy maintenance.
 - Supporting and carrier bar of bottom belt is zinc coated, which feature nice appearance and anti-corrosion.
- The discharging port can be equipped with pneumatic flap, which is good for small batch blending and avoid error blending and leakage.
- Bottom belt to be equipped with double cleaning brush.
- Master and driven rollers of reciprocating distributor and longitudinal distributor can be drawn out from the side, which is convenient for installation and maintenance.





With detecting device for detecting bulking volume of tobocco materials inside the silo, which is convenient for checking the bulking volume of the whole processing line. Optional loser distant measuring device for precise detecting the bulking volume and make it possible that the longitudinal distributor can feed materials into silo at any optional position along the guidine mil.

- Discharging speeding of bottom belt is variable via frequency inverter.
- The driving of doffer has timing belt or chain driven for option. Doffer can be equipped with optional detecting device for monitoring the rotation status of doffer to ensure the safe and reliable discharging.

- Bulking width: 800~3000mm
- Bulking height: 800~1200mm





C (J, K, P) 6E Series of Electronic weighing conveyor

Application:

This product is a dynamic weighing machine. It is used in the tobacco primary processing line and threshing and redrying line for achieving accumulating metering, flow rate control, material blending and quantitative control.

Features:

- Adoption of direct stress transfer structure, featuring more direct and reliable stress transfer and good stability of whole machine.
- Conveying and weighting frame adopting cantilever support, more convenient for belt replacement within 30 minutes.
- The sensor installed on the two sides of frame, more convenient for commissioning and replacement.
- Unique tension device. Advance-stroke and return-stroke tension rope in parallel to make the zero point stable, movable counter weight on the tension hammer to resolve the problem such as deflection load and off tracking of belt.
- Double carrier roller with strong anti-interference ability.
- High metering occuracy. Direct stress, double carrier roller and no-weighing frame structure for eliminating the influence on metering occuracy due to horizontal component force arise from the belt movement, the effective length of weighting parts is also favorable factor for increasing metering occuracy.
- Wide adjusting range for blending ratio.
- PLC control with touch screen and HMI for convenient operation and maintenance.





Automatic deflection
Fault recording
Modula fault detecting
Weight signal fault detecting

Speed signal fault detecting

Frequency inverter fault detecting Electrical push rod position displaying

Automatic coefficient calculation of weighing calibration

Applicable for diversified communication and interface

Technical Specifications: - Rated capacity: 300~12000kg/h

- Width of conveying belt: B=600mm, 800mm, 1000mm, 1200mm, 1400mm, 1600mm, 1800mm.
- Distance between the centre of drive rollers: Lo=2780mm; Lo=3000mm.
- Length of metering section: L=1000mm
- Sensor range: $G=4\times6kg$; $4\times10kg$; $4\times20kg$; $4\times30kg$;
- Metering accuracy: ≤ 0.5%
- Control accuracy: $\leq 1\%$





WPLZA/WCLZA Series of Feeder

Application:

This product is used in primary processing line or tobacco threshing and redrying line for flow rate control, even and quantitative conveying material. It can work with electronic weighing conveyor and metering chute for constant flow rate.

Features:

- Chain of steep conveyor equipped with nylon guide pulley at the side, which features light weight and low noise.
- Frame of tobacco box is wholly welding structure.
- With scallop type photocell detecting window, with wide regulating range.
- Adoption of KA type direct-coupling gear motor, which features compact structure and convenient repair.
- Dust collecting box being floor drawer type for convenient cleaning.
- Bottom cover equipped with return material guide board for guiding the carried material during return into dust collecting box.
- Steep conveyor with lower and upper horizontal parts, which can reduce carried material during return and material leakage.
- With enlarged distance between steep conveyor driving roller and brush roller, and material guide board before brush roller so as to avoid material falling on the brush directly for reducing carried material during return. With whole brush roller for cleaning thoroughly.
- Sealing material to be of pyramidal shape formed by heat compression, with good sealing effect in each turn



Technical Specifications:

- Rated capacity: 1000~11000kg/h
- Width of conveying belt: 600mm~1600mm
- Inclined angle of steep conveyor:52°



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Subject to technical alterations . Oct.2007





YH93 Series of Tipper

Application:

The product is mainly used in tobacco primary processing line and threshing and redrying line, brewery industry and chemicals industry to tip material contained in boxes to its connected machine afterwards. This product can eliminate use of laborers for heavy physical handling and improve the work efficiency while reducing material degradation and improving working and hygiene conditions.

Features:

- Rotating shaft of materials hopper direct coupled to gear motor output torque for tipping materials hopper which feature direct and easier force transmission, compact structure and convenience maintenance.
- Material hopper frame to be wholly welded.
- -With two tipping mode as per different packing method: clamping type with suction disc for cartons, lifting type with fork arm mainly for boxes with forklift slots.
- Lifting type tipper can interface to downstream equipment with big height fall which feature less linking equipment and simple operation.
- Optional lid opening device which can greatly reduce degradation and leakage.
- -Safety door instantaneously activated with infrared barrier out of photo sensors. Machine automatically triggers control circuit cut-off and stops running when light beam is blocked.



Technical Specifications:

- Rated capacity: ≤2000kg/h (tipping weight ≤800kg per cycle)







ZBH(SBD、SBS) Vibratory (Sieving) Conveyor

Application:

This product is widely used in primary processing line and threshing and redrying line for loosening and conveying the tobacco material such as cut-tobacco, tobacco leaves, lamina, cut-lamina, stem, cut-stem. It is auxiliary linking equipment between main equipments.

Features:

- With good loosening effect and high sieving efficiency.
- Simple structure and convenient operation and maintenance.
- Flexible utilization, can be used for fixed-point material feeding and waste material rejecting.
- Reliable connection between sieving plate and trough body and easy for dismantling and replacement.
- With various sieving mesh size.

- Rated capacity: ≤12000kg/h
- Width of trough body: 400mm~1600mm
- Depth of trough body:100mm~350mm









DPH、DUC、DUL、DPM Type Belt Conveyor

Application:

This product is widely used in primary processing line and threshing and redrying line for conveying various tobacco material.

Features:

- With mature technology and reliable performance.
- Stable running and low noise.
- Easy and convenient for maintenance and cleaning.
- Less leakage.

- Maximum rated capacity: 12000kg/h
- Inclined angle of belt conveyor: 0~29°
- Center distance of master and driven roller: 2~40m
- Width of belt: 400~1600mm







YB18A Tray Discharger

Application:

This product is used to discharge materials (cigarette rods or filter rods) in trays into the material hopper, and then feed materials via conveying channel to downstream equipment as demands, then convey empty trays to proper locations for convenience of manual handling. It can be used for either feeding materials to makers or to filter shooter. It mainly consists of machine frame, rotating device, elevating device, material hopper, conveying channel, pneumatic control system and electric control system.

Features:

- The driving motor of rotating device and elevating device adopt AC frequency converter drive, which can ensure stable running.
- Upper and lower tray conveyors adopt direct driven mode, which can ensure reliability.
- Pneumatic system adopts valve island and pressure transducer which can make sure that machine start only at preset compressed air pressure.
- Trouble locator for ease of operation and repair.
- S7-300 series PLC with Profibus interface
- Coordinating with maker and packer from Hauni, Mollins, and GD etc.

- Rated discharging capacity: 4 trays/min
- Suitable rod size: 65~150mm in length
- Suitable tray size: 500~720mm in width,
- 380~430mm in height, 75~170mm in thickness







YF24B Filter Rod Pneumatic Conveying and Distributing System

Application:

The system is used in secondary workshop for automatically feeding filter rods to medium or high-speed cigarette maker. It consists mainly of shooter, conveying pipes, receiver, electrical control cabinet and optional optional information system.

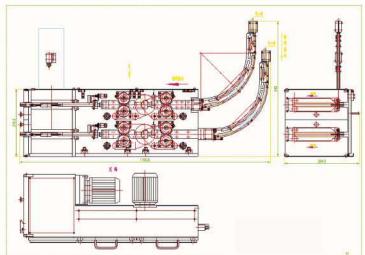


Features:

- Shooter is made up of several shooting units and each shooting unit can work separately
- Compatible with filter rods with various material and size.
- With functions of detecting and rejecting unqualified filter rods.
- With functions of counting of the conveyed filter rods.
- Both single pipe and double pipe receiver with left and right feed port, can connect with various high-speed cigarette maker.
- Adoption of advanced field bus and PLC control technology, information monitoring and display system for option.



- Rated shooting speed per shooter unit: 700~1700 rods/min (speed variable via frequency inverter by manual operation).
- Rated feeding speed of receiver per pipe: 1700 rods/min.
- Compatible material: fiber filter rods, paper filter rods, and composite filter rods
- Compatible specification of filter rods: Φ 5.4~9mm in diameter, 65~150mm in length
- Effective working efficiency: ≥95%









YF161A Filter Rod Storage and Conveying System

Application:

The product works as a flexible link between filter rod maker and shooter.

Features:

- Main frame of reservoir is made of industrial aluminum profile, and plexiglass door, handles, hinges, connecting parts of aluminum profile adopting standard module.
- Conveying device is the structure of flexible apron for gentling handing filter rod.
- Servo driving system to ensure balanced continuous speeds.
- With touch screen for easy operation and maintenance.
- SIEMENS S7 series PLC control system with Profibus interface

- Max. filter rod conveying speed: 12000 pcs/min for 7.8mm diameter filter rods
- Storage capacity: 88,000 pcs for 7.8mm diameter filter rods
- Solidifying capacity: 230,000 pcs for 7.8mm diameter filter rods
- Solidifying time: not less than 25 min.









FY31B Rejected Cigarettes Reclaimer

Application:

This product adopts shallow wetting technology and special cigarette ripping device. It can utmost reclaim cuttobacco from the rejected cigarette with or without filter. The filament percentage, moisture content, color and luster of the cut-tobacco reclaimed by this product can keep unchanged.

Features:

- Compact structure, high airtightness, high reclaiming efficiency, small floor occupancy, low energy consumption, convenient, reliable and safe operation, advanced control.
- Adoption of helical knife for ripping.
- Feeder driven by electric roller, whose speed is adjustable through frequency conversion.
- Adoption of belt wetting system with bilateral water inlet for controlling moisture content of belt.
- Vibratory sieving of cigarette paper apart from cut-tobacco.

- Rated capacity: 200kg/h for cigarette without filter and 250kg/h for cigarette with filter
- Reclaiming efficiency of cut-tobacco: \geq 95% (for cigarette with filter) or \geq 93% (for cigarette without filter)





Control System of Tobacco Primary Processing Line

Application:

The control system of tobacco primary processing line developed by KSEC is base on design principle of advanced, practicable, reliable and economical by utilizing world advanced industrial control technology. It can meet the requirement of low consumption, improving quality, precise formula blending and integration of management and control. By adopting centralized-decentralized Industrial Bus control mode, it combines various technologies of detecting, PLC, computer graph, network and communication, adopts convenient and flexible design of hardware and software module, so as to meet the requirement of process control and management with different characteristics thus to achieve precise control over the automatic technological process of tobacco-primary processing and meet the requirement of monagement informationization.

Features:

- Openness, expansibility, distributed control, intelligence, information electronization and network.
- Adoption of totally integrated automation solution for meeting the requirements of technological process, quality control and production management of tobacco primary processing line.
- Can be operated individually or be one of sub-system to supply production control information for enterprise's grade information management system.
- Adopting three level control structures of on-site control, centralized monitoring and controlling and production management with reasonable structure and clear level.
- Adopting digital communication technologies such as industrial field bus and industrial Ethernet to perform distributed control thus to improve the control accuracy, respond time and good performance/price ratio for the whole system.
- Simple and convenient design, mechanical and electrical integrated design, easy for reconfiguration, good adaptation to tobacco primary technological process.
- Integration of field LED display system to help operator checking actual status of the whole production line.
- Integration of visual centralized monitoring and controlling system to help operator to get first-hand on-site visual information.
- Electric protection grade of hardware up to IP54.
- The control system adopts overall safety design to ensure safe operation.
- Adoption of authorized management to ensure system safety and can record operating history.
- Convenient not only for centralized management, control and operation, but also for installation, commission and maintenance on site.
- Easy for operation and maintenance, friendly HMI, with advanced construction and combination of structural unit of program design and control system.



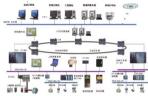




- With perfect data acquisition function. Quality data of main process indexes can be recorded at real time.
- All main parts and components are world famous brand.

The main parts and components include: moster controller, distributed type I/O, motor controller, frequency inverter, soft starter, DC regulated power supply, control transformer, air breaker, contactor, master switch, batton, indication lamp, control othenic (box) frame, supervisory software, data base software, operation system software, development tools of management system, server, computer and display screen, etc.

- Power distribution adopts three-stage power supply method: workshop low-voltage distribution to each technological processing section, each technological processing section to control cobinet on site. control cabinet on site to motors of equipment. Each stage of power transmission adopts protection switch for protection of equipment of the next stage.
- Master switch adopts electricity start for power supply, wire inlet of switch cabinet can adopt both top and bottom inlet.
- Power distribution cabinet:
- 380V ± 38V AC for power supply of equipment.
- 220V AC and 24V DC for control power supply of detecting devices and actuating devices.
- Technological control sections: lamina processing section, cut-lamina processing section, stem and cut-stem processing section, blending and flavoring section, cut-to-bocco storing section, cut-to-bocco pneumatic feeding section, pneumatic conveying and dust removing section, Burley to-bacco processing section, casing kitchen. pilot line and centralized monitoring and controlling system.
- Composition of control system: main control cabinet, power distribution cabinet, distributed type control box, intelligent device, on-site operation inquiry terminal and centralized monitoring and controlling system.





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