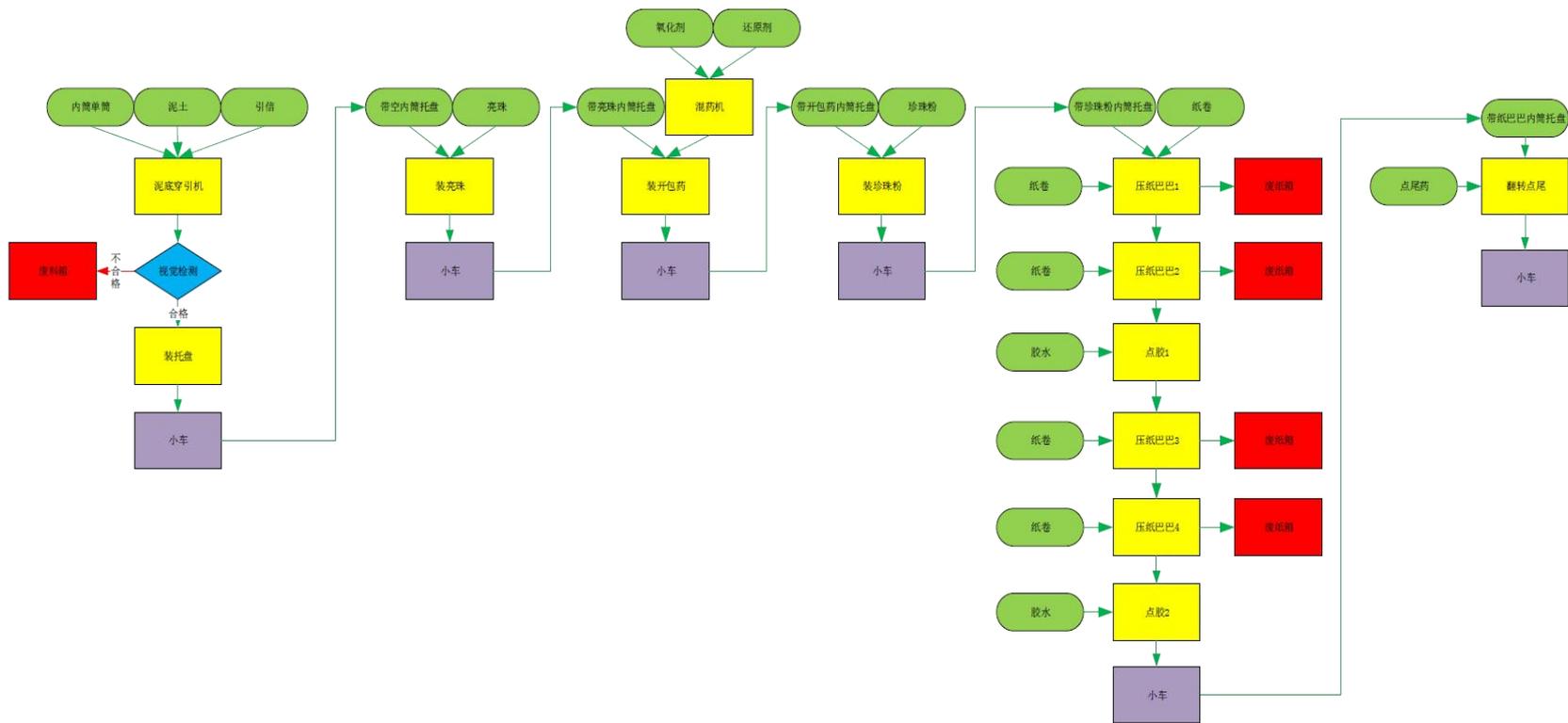




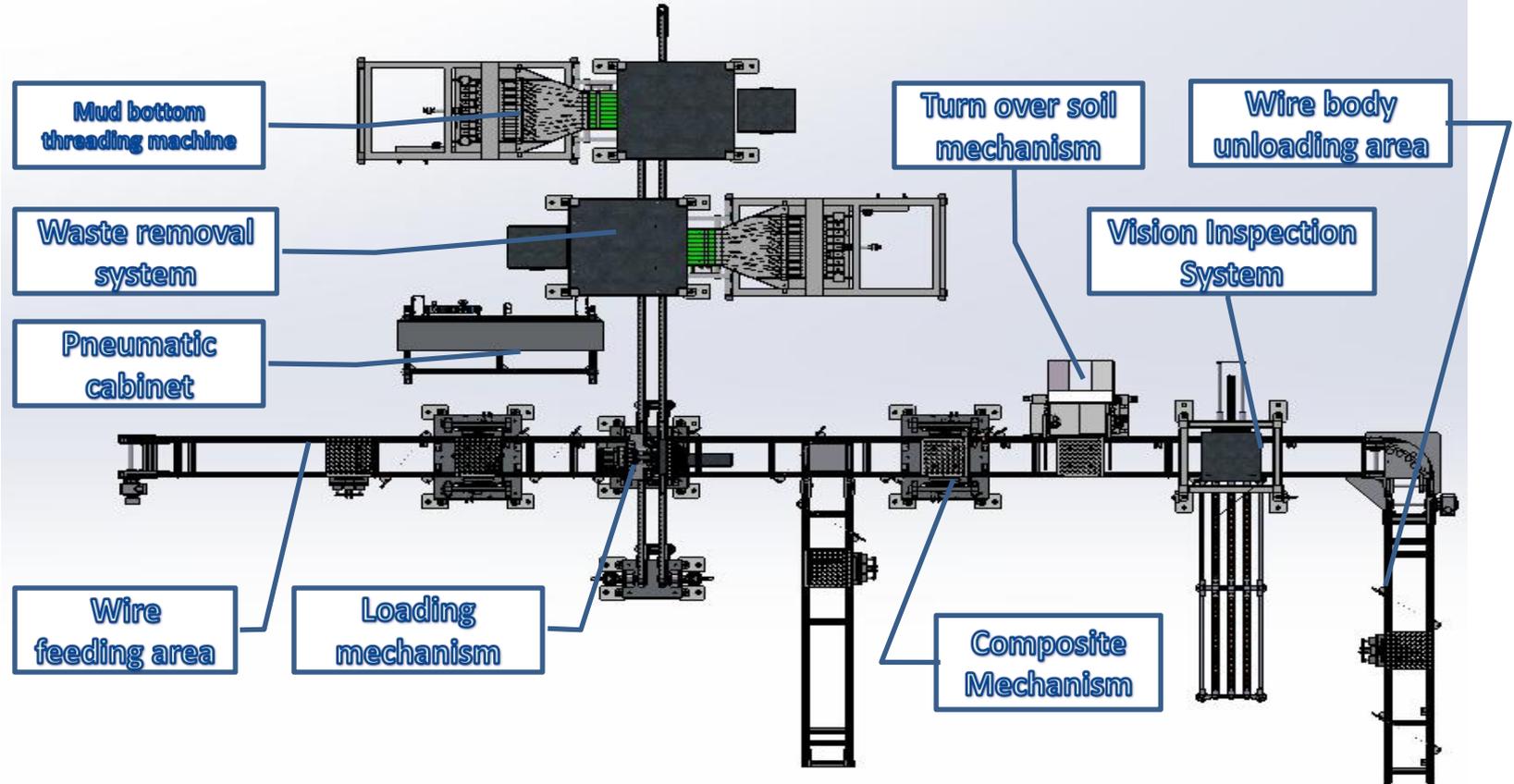
Fireworks and Firecrackers
Production Line-Inner Tube Line

内筒线工艺流程



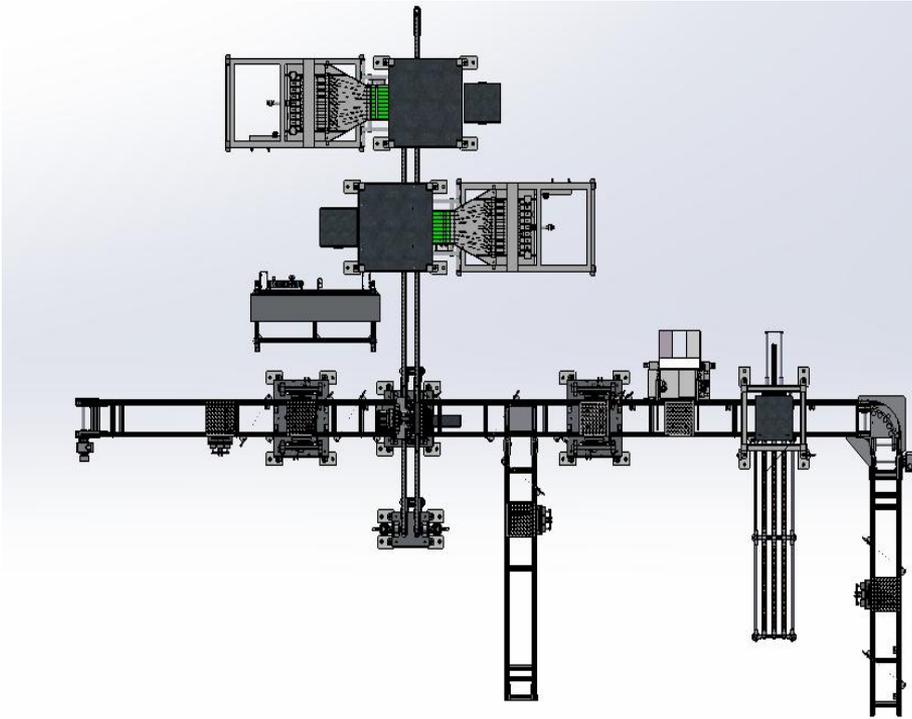
Single station layout

Inner Tube on-line



Single station function

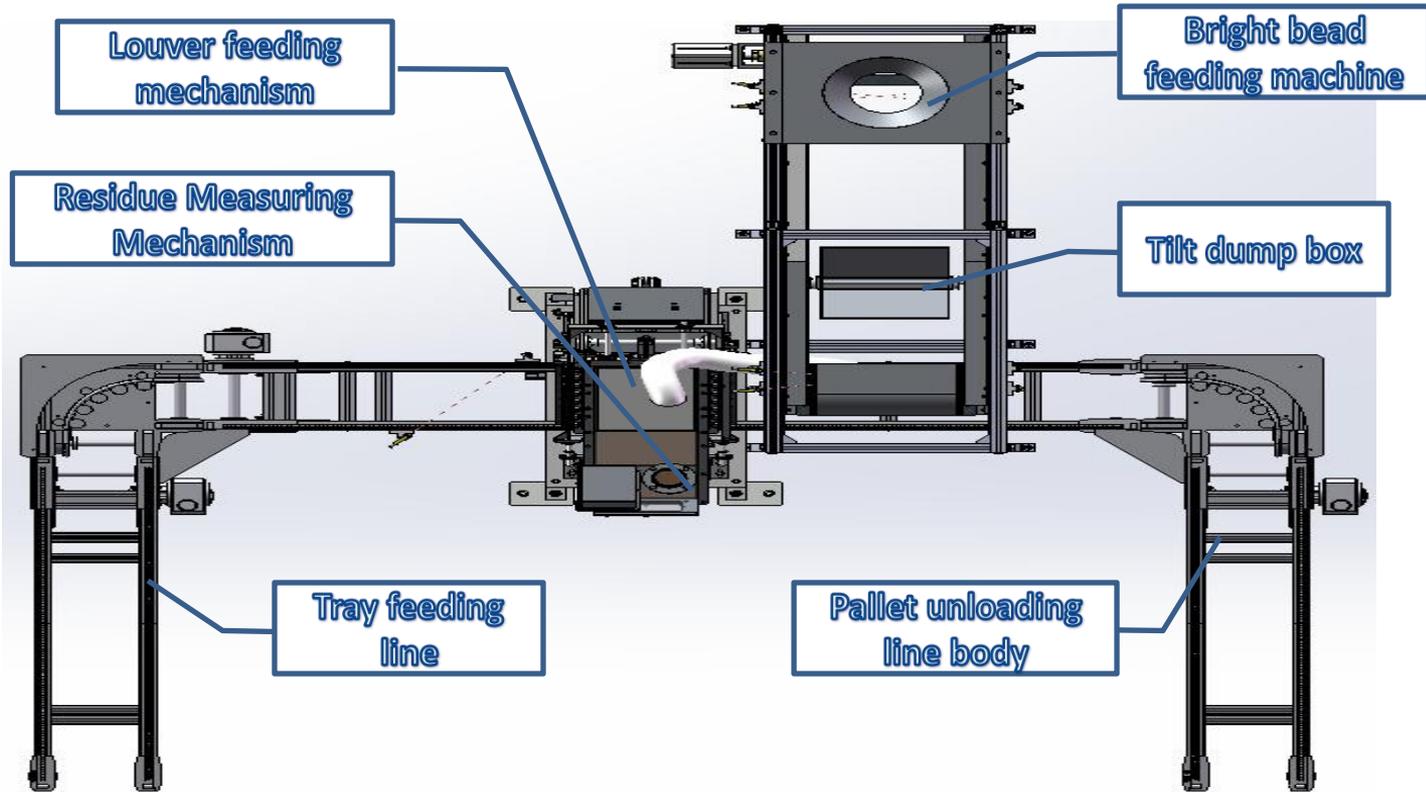
Inner tube-line station



- Insert the raw material inner cylinder into the lead wire of appropriate length and press it into the mud bottom.
- Visual inspection to remove unqualified products with lead wires and mud bottom.
- Put the tested inner cylinder into the tray. Ensure that each tray is full of material.
- Combine the upper tray and the lower tray to achieve the function of fixing each inner cylinder.
- The overturning mechanism pours out the residual soil in the inner cylinder and collects it for recycling.
- Visually inspect the status of the full tray again to ensure that each tray is

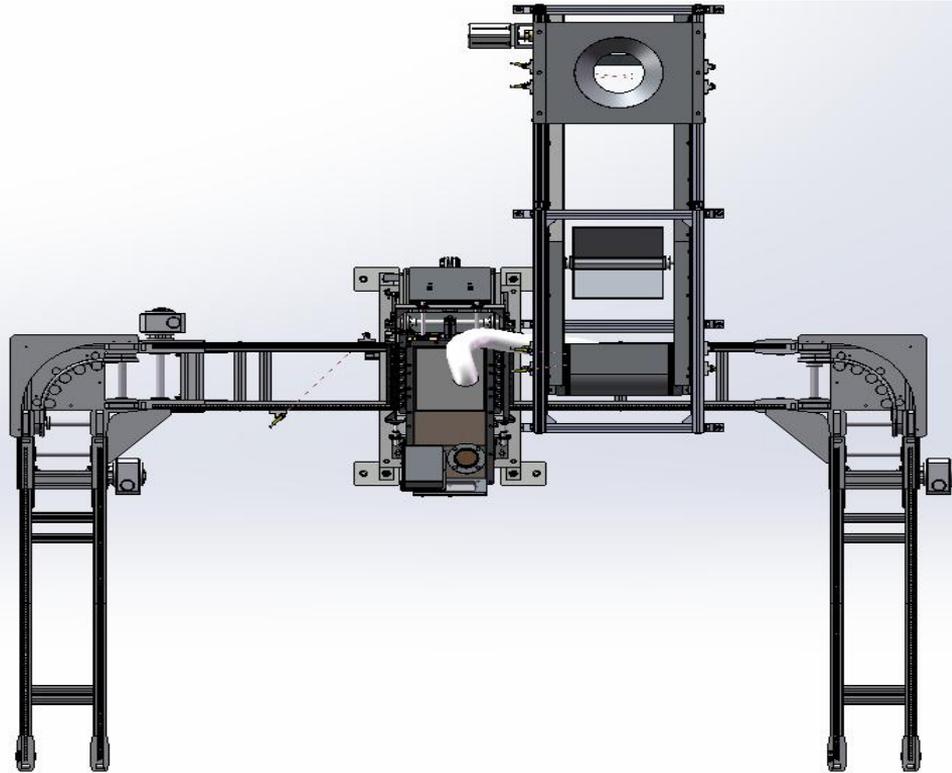
Single station layout

Bright bead station



Single station function

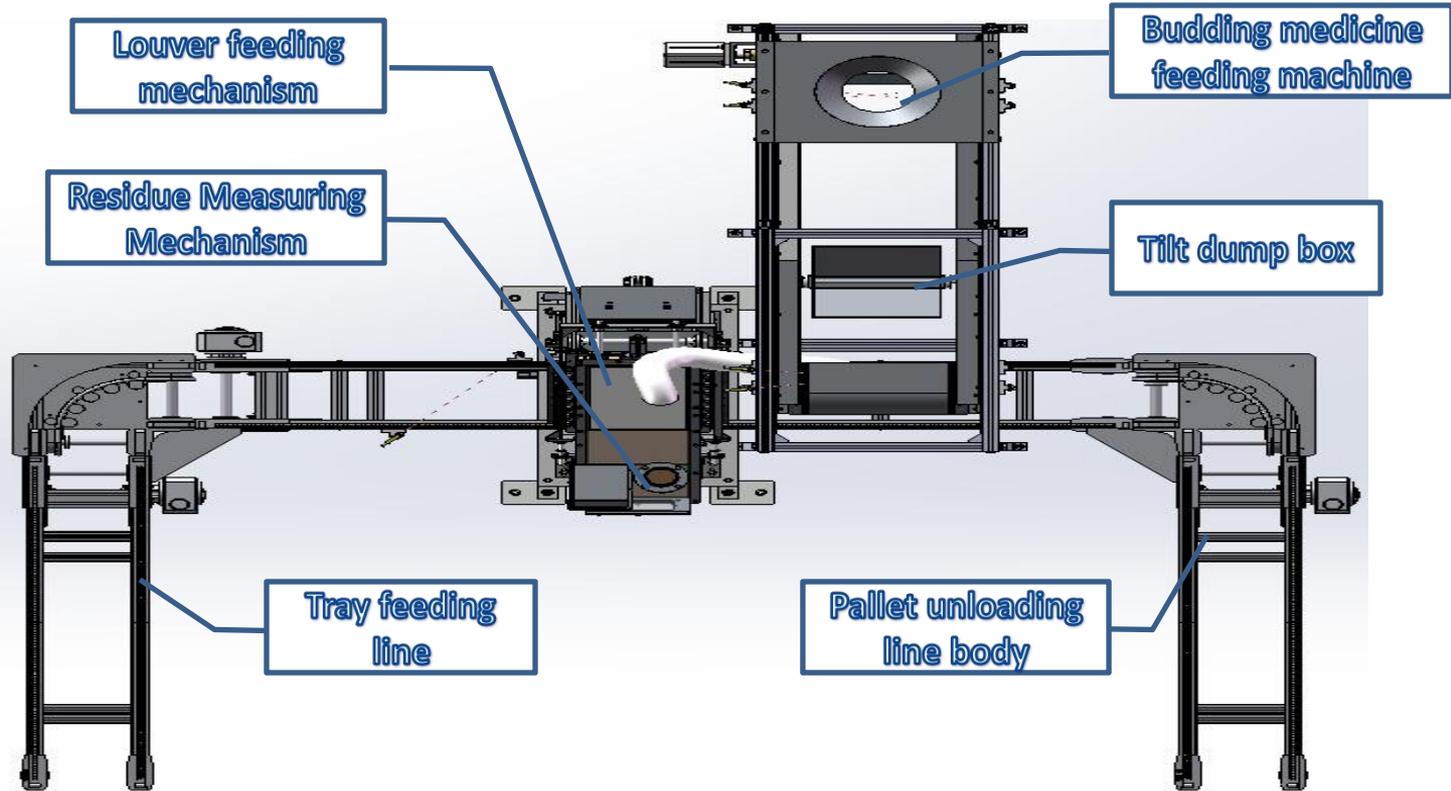
Bright bead station

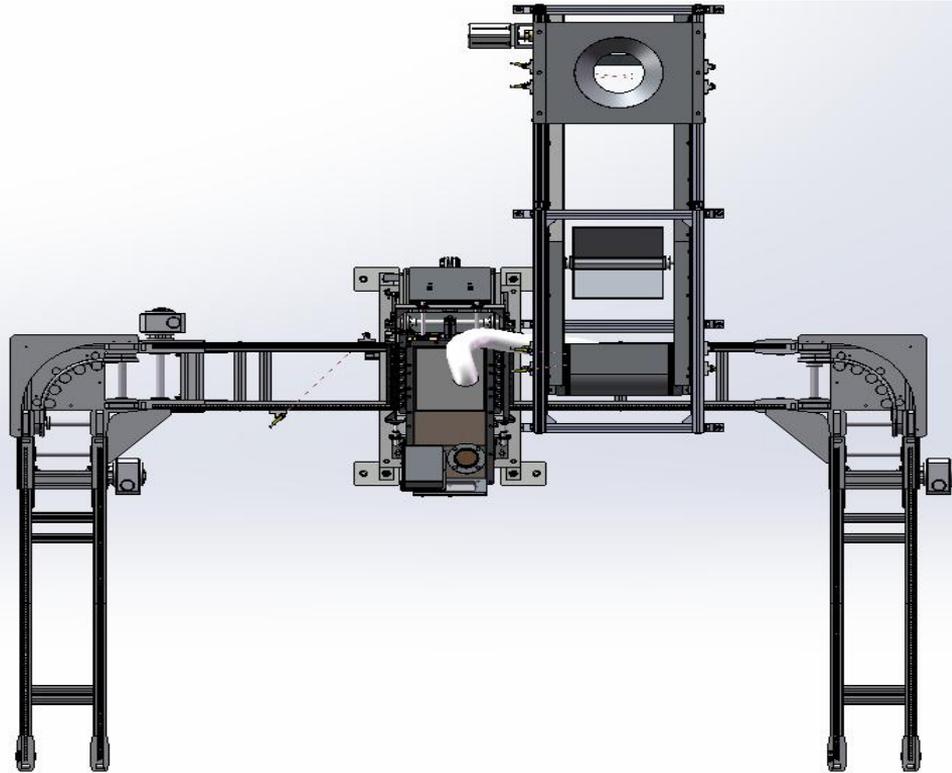


- The pallets filled with inner cylinders are transported to the station by the line body on the feeding side.
- The positioning mechanism lifts and positions the tray in the station so that the inner cylinder corresponds to the dosing mechanism one by one.
- The bright beads in the material box of the feeding mechanism rise up, and when they reach the limit, they are tilted to pour the bright beads into the storage area of the feeding mechanism.
- The dosing mechanism is turned over so that the bright beads corresponding to each cylinder are evenly distributed.
- The discharge mechanism acts to release the bright beads into the inner cylinder in the tray.
- The tray full of bright beads is transported to the next station by the unloading line.

Single station layout

Packing and opening medicine station

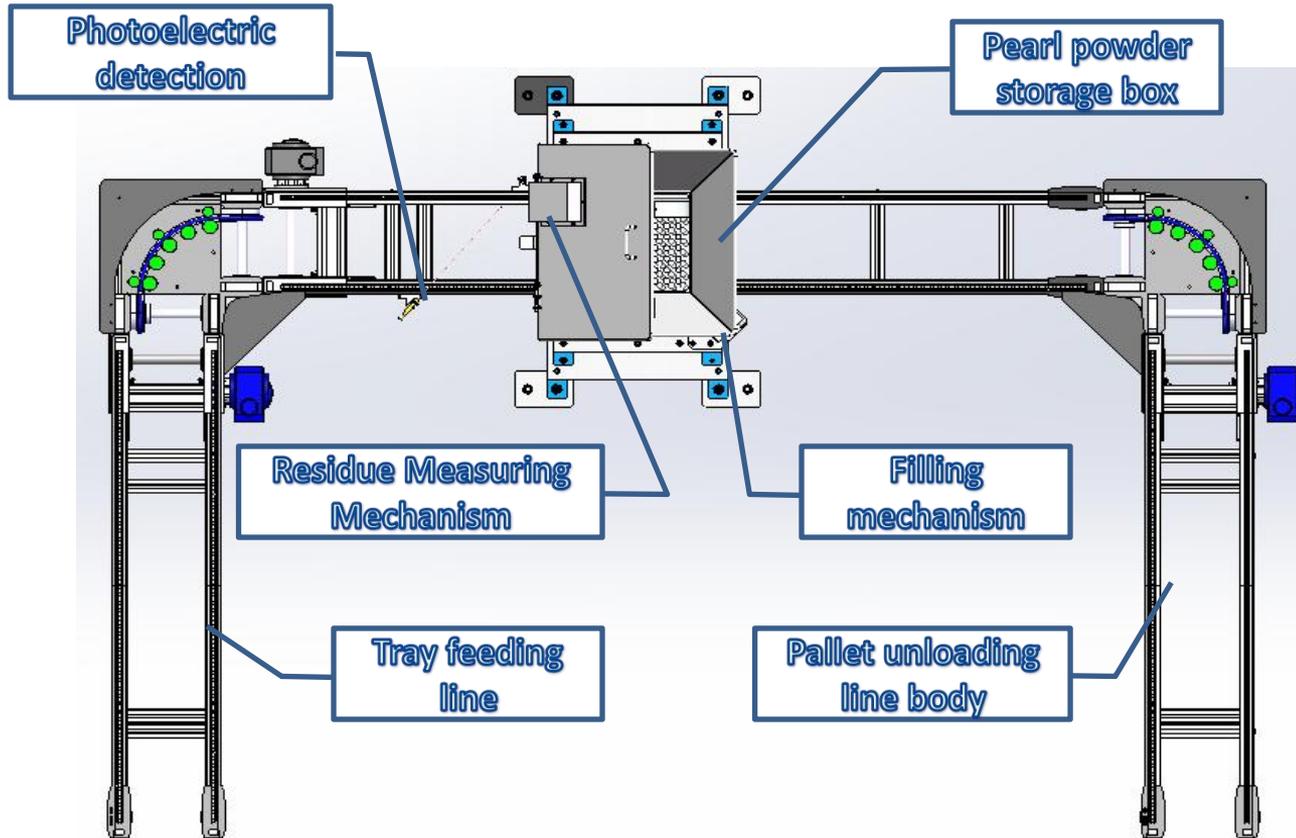




- The pallets filled with inner cylinders are transported to the station by the line body on the feeding side.
- The positioning mechanism lifts and positions the tray in the station so that the inner cylinder corresponds to the dosing mechanism one by one.
- The bud-opening medicine in the material box of the feeding mechanism rises, and when it reaches the limit, it tilts and pours the bud-opening medicine into the storage area of the feeding mechanism.
- The dosing mechanism turns over so that the corresponding bud opening medicines of each barrel are evenly distributed.
- The action of the feeding mechanism puts the bud-opening medicine into the inner cylinder in the tray.
- The pallets filled with bud-opening medicines are transported to the next

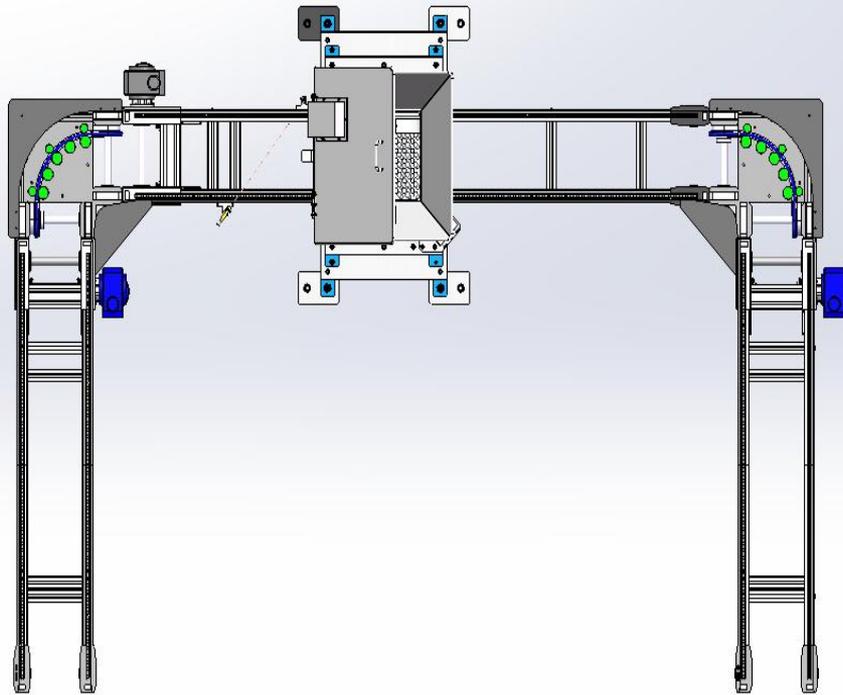
Single station layout

Pearl powder station



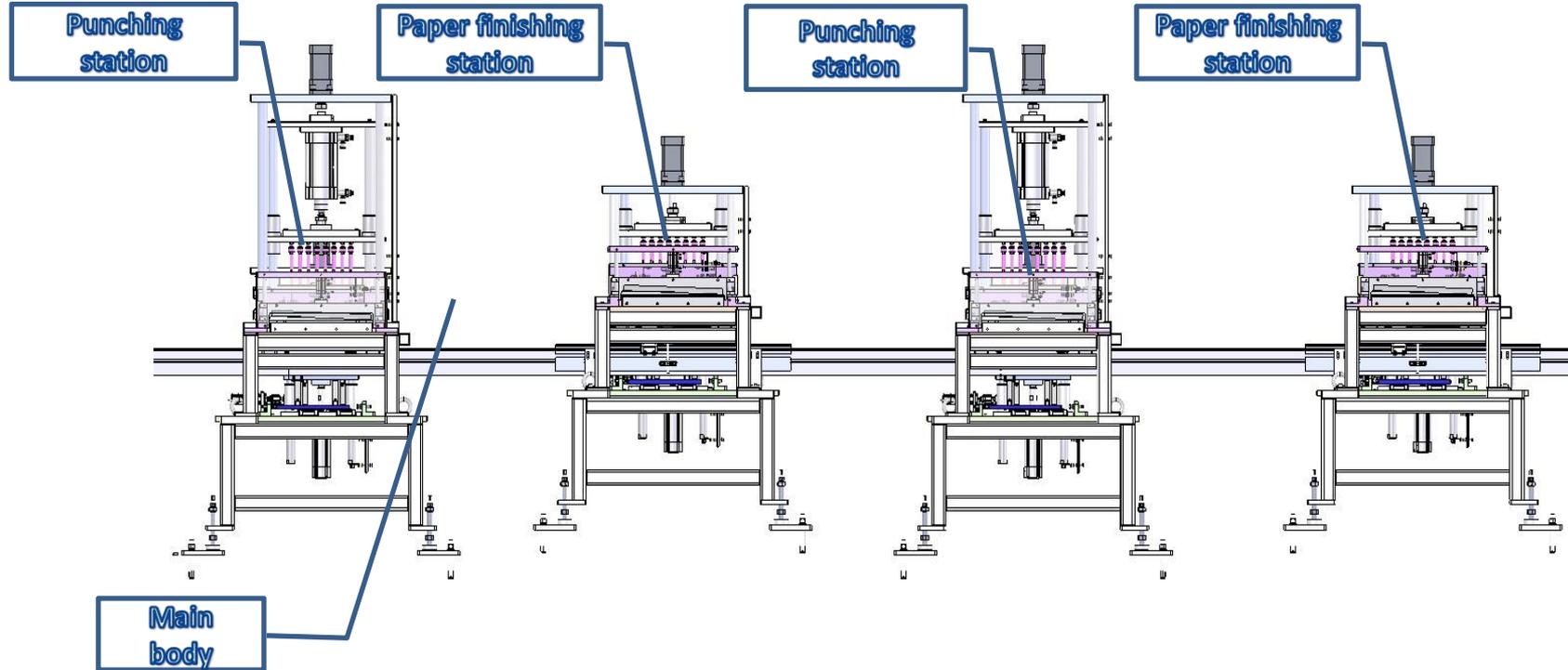
Single station function

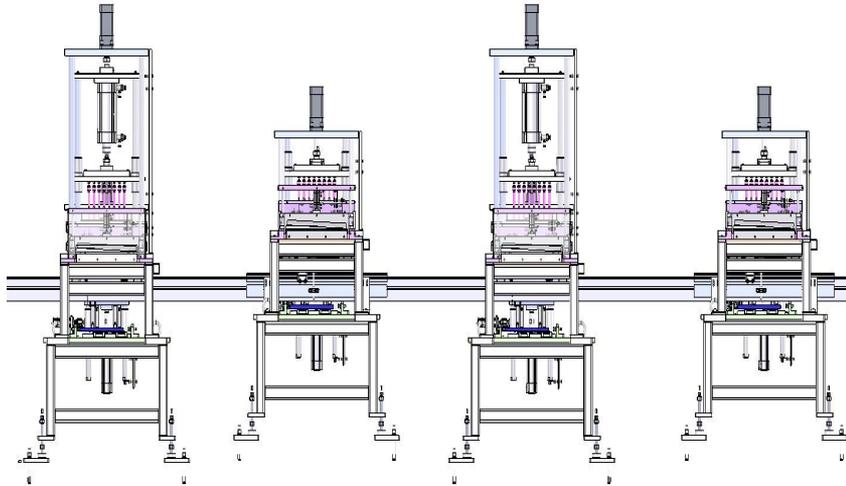
Pearl powder station



- Add the pearl powder into the pearl powder storage bin, and the detection device detects the total amount in real time.
- The tray with full of inner tubes runs from the feeding line body to the feeding position.
- The tray that has reached the feeding position is positioned, and then the feeding mechanism will feed the inner cylinder in the tray.
- After finished feeding, the tray arrives at the designated unloading line body position, and waits for the transport vehicle to carry it to the next station.

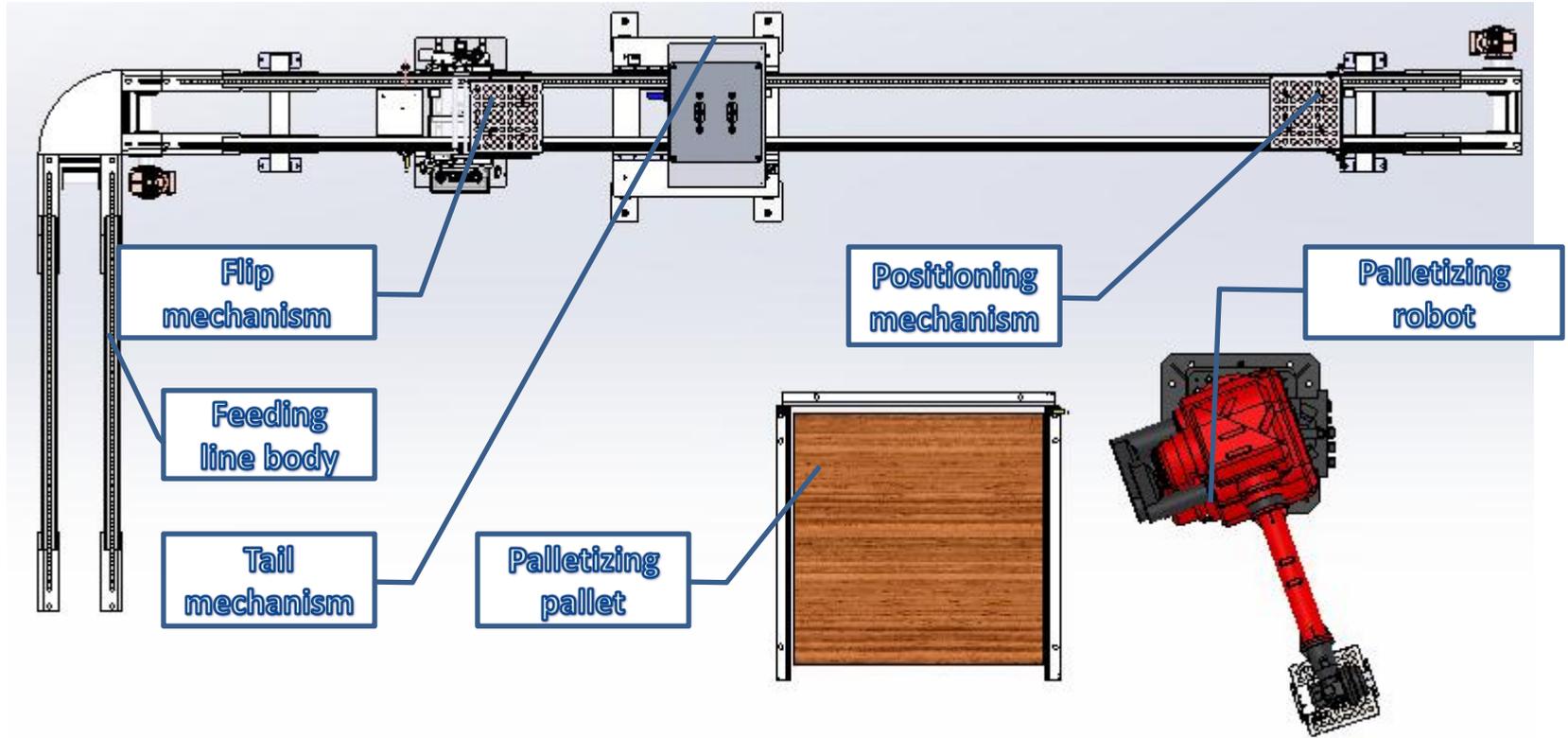
Single station layout Inner cylinder sealing station





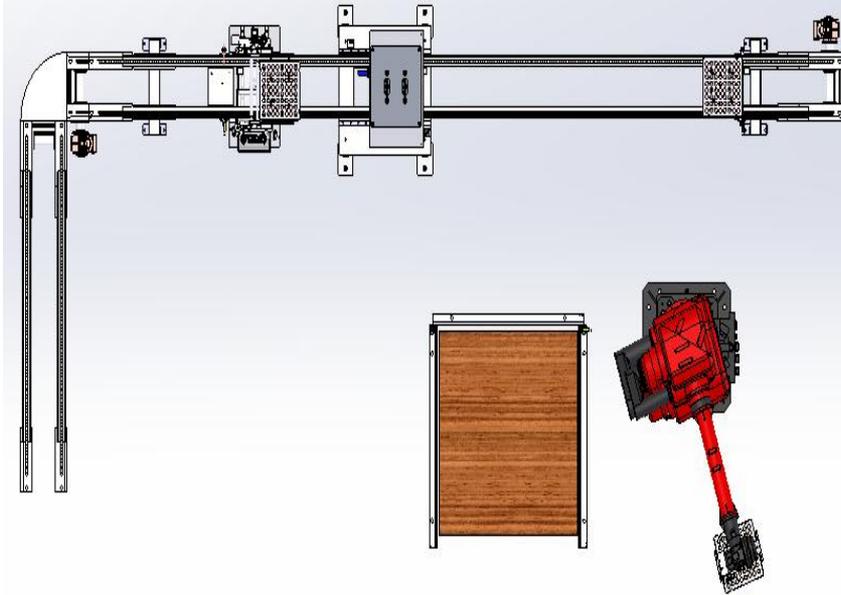
- The tray of inner cylinders enters the first stamping paper station, which stamps twice the inner cylinders in the tray.
- The pallet with two sheets of paper enters the second sheet sorting station, where the previous two sheets of paper are guided and flattened.
- Afterwards, the tray enters the third and fourth stations in turn, and repeats the actions of the first and second stations, and finally ensures that four pieces of over-win fit paper are pressed

Single station layout Point tail palletizing station



Single station function

Point tail palletizing station



- The trolley will put a group of pallets on the feeding line body, and the line body releases the pallets once.
- When the flipping position is reached, the flipping mechanism flips the pallet for tailing.
- The pallet arrives at the tail point mechanism for positioning, and the tail point mechanism acts to carry out the point tail
- The pallet after pointing the tail continues to advance to the positioning mechanism for positioning, and the robot grabs it.
- The palletizing robot grabs the pallets and then put the pallets on the racks



Whole line produce capacity

- The theoretical output of the whole line is 120 groups/hour;
- Theoretical production beat: ≤ 30 seconds/group
- Theoretical annual output: $120 \times 8 \times 250 = 240000$ groups; (one group = 64 rounds)



Automation degree

- This station is a fully automatic workstation, no human intervention is required during normal work. One feeding can work continuously for 20 minutes.
- Centralized control cabinet control is adopted to ensure production safety.
- If there is an unexpected failure during the production process, the sensor can identify the location of the failure and the possible reason of the failure and display them centrally, which is convenient for maintenance.



Safety and reliability

- The line body of this line is driven by a hydraulic motor instead of a motor, and the hydraulic station is separated from the working space, which can effectively prevent unsafe factors caused by electric sparks.
- The paper pressing action is driven by an explosion-proof cylinder, reducing the risk of the gun being detonated.
- Every stop process of each movement mechanism is equipped with a buffer plus a limit stop to prevent excessive impact from detonating and firing nitrate.
- The sensors are all intrinsically safe sensors for the whole station
- The non-metallic materials are all anti-static materials for the whole station
- Single station is equipped with emergency stop and alarm function.
- After the paper is pressed, the visual camera will take pictures and monitor to ensure that the quality of the pressed paper in each paper tube meets the process requirements.

A vibrant night scene of a city skyline reflected in a body of water. A multi-arched bridge with glowing yellow lights spans the foreground. The city behind it is illuminated with various lights, including a prominent blue and white tower. Several large fireworks are exploding in the dark sky, with one large white firework on the left and several red ones in the center and right. The text "Thank you" is overlaid in the center in a white, outlined font.

Thank you