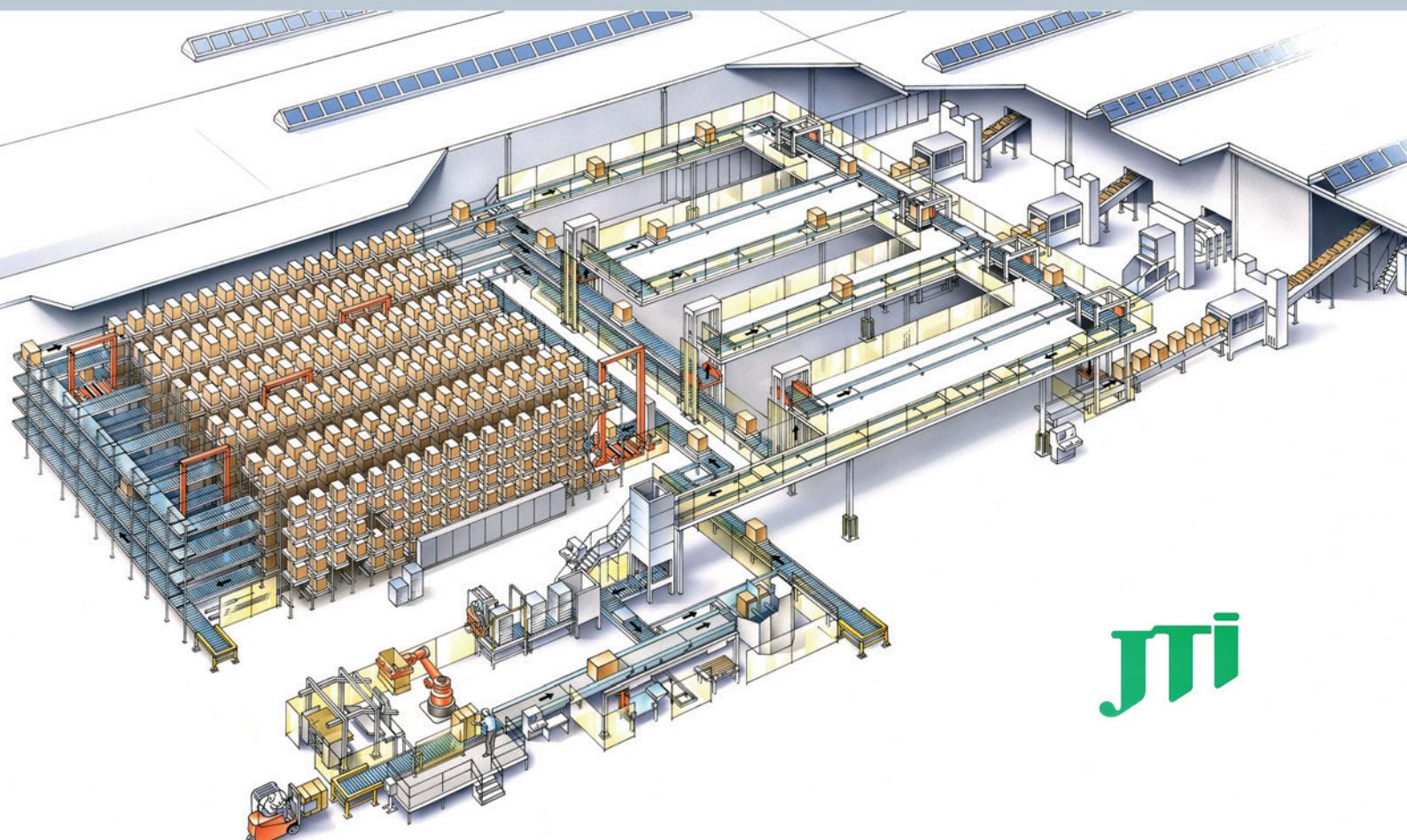




JOB REPORT 25



Safe material flow of tobacco bales. PETRO St. Petersburg

With an annual output of 75 billion cigarettes in 2006, PETRO St. Petersburg is JTI's largest manufacturing facility in the world. To react more precisely to the market, the KÖHL Maschinenbau AG was authorized to install a facility which empties C48 cartons and divides tobacco bales.

The half tobacco bales are transferred to stock on stainless steel pallets and are supplied to production after stock removal. On the level of SPS and material flow calculation an exact pallet tracking with permanent data synchronization of both systems is effected to ensure 100% safe material flow.

The C48 cartons are supplied onto a conveyor device by stacker crane and are conducted to an automatic dismantling. The dismantling mainly consists of a 5-axis-robot, a carton folding unit and a carton stacking device. Cartons are mechanically centered, picked by robot, 90° rotated and supplied to operator. Operator opens straps, removes internal paper sheets and visually controls quality of tobacco bales.

Robot again rotates C48 carton 90° and removes it from bale. The empty carton is put over a folding unit and robot goes to next dismantling. A folder shifts the carton laterally in an almost flat position and moves it to the stacking unit. Grippers take over the carton and stack 20 empty cartons one above the other. They are stacked on a pallet and can be taken by fork lifts.

The tobacco bale is now guided via belt conveyors to a cutting device (divider). It centers the bale and exactly divides it into 50:50. Parallel to the cutting device special stainless-steel pallets are supplied. Each half bale is moved onto one pallet. Production data of the tobacco bale are electronically stored in a transponder which is firmly mounted to the pallet.

Data can be read by adequate read stations at points of decision. By appropriate conveying systems pallets are chaotically stored in a high bay warehouse with 900 storing positions by 5 stacker cranes.

Stock removal is effected according to production orders. Stack feeders carry pallets to rack aisles in 4 levels according to the production orders. Pallets are assembled to a batch on conveyor techniques in the order of their arrival and are conveyed to production.

At a level of approximately 5m tobacco bales are pushed off the pallets and are lowered to level of production machines by vertical conveyors. Bales are now supplied to Slicer/DCC-lines by appropriate belt conveyors.

For control of machines and conveyor techniques the system is equipped with 5 Siemens S7/400 control systems. Safety features and equipment for the whole assembly is controlled by a special Security SPS, which besides function as safety PLC also manages data transfer between individual control units.

Control of material flow and warehouse management is realized on the base of a highly redundant cluster platform. The standard system MoTIS® which is adapted to the individual requirements of JTI is applied.



The dismantling mainly consists of 5-axis-robot, a carton folding unit and a cartonstacking device.
Dismantling per hour: 75 x C48 Cartons



After automatic dismantling:
Cartons ar picked by robot
and supplied to the folder.



Cutting device (divider):
It centers the bale and exactly
divides it into 50:50.



Parallel to the cutting device
special stainless-steel
pallets are supplied.



Store with stacker crane.



Vertical transport - bales without
palettes.