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Management requirement of automated picking equipment

自动分拣设备管理要求

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Management requirement of automated picking equipment

1 Scope

This standard specifies the basic management, preliminary management, use management, maintenance and repair management, upgrading and renewal, personnel training, file management, and other management requirements of automated picking equipment (hereinafter referred to as equipment).

This standard applies to the management requirements for various types of automated picking equipment.

2 Terms and definitions

The following terms and definitions apply to this document.

2.1 automated picking equipment

An automatic system that can identify the items' ID (identity) attributes through the identification system and can classify, reorganize and transmit the items according to their identity attributes, which is mainly composed of a transmission and supply device, an identification system, a control system, a mechanical sorting mechanism, and an information processing system.

2.2 partition

It is used to accommodate the sorted items, and it can be a chute with a certain capacity or a conveying mechanism.

2.3 supply device

In an automated picking and transmission system, it is the part before the sorting mechanism; it can identify the sorting information of the items (generally a manual auxiliary station is set to sort the items), and control the rhythm of the operation. In some high-speed sorting equipment, multiple supply devices automatically coordinate to ensure synchronization with the host, and send items to the corresponding position of the picking equipment.

3 Basic management

3.1 The organization that uses the automated picking equipment system shall set up an

--- Major accident: It causes the equipment to be out of use for one month or more, or the direct economic loss is greater than 50,000 yuan.

--- Larger accident: It causes the equipment to be out of use for more than a week, within a month, or the direct economic loss is 5,000 yuan to 50,000 yuan.

--- General accident: It causes the equipment to be out of use for a week or less, or the direct economic loss is less than 5,000 yuan.

3.5 The handling of equipment accidents shall adhere to the principle of "three not to let go", that is, not let it go if the cause of the accident is not clearly analyzed, not let it go if the person who is responsible for the accident and the public are not educated, and not let it go if there is no preventive measure.

3.5.1 After the accident occurs, the site shall be strictly protected. The operator and the parties shall immediately report the time of the accident, the circumstances of the accident, the degree of damage to the equipment, etc. to the management department. The site shall not be damaged until the situation is investigated clearly.

3.5.2 The equipment management department shall organize relevant personnel to conduct accident investigation and analysis, write out accident reports, endorse the handling opinions to the supervisor, and archive the files.

3.5.3 After the cause of the accident is identified, the equipment shall be repaired in time to resume production as soon as possible.

4 Preliminary management

4.1 Before the automated picking equipment is officially put into operation, the purchase planning, purchase, installation and debugging, appraisal and acceptance of the equipment shall be taken as an important part of management.

4.2 The purchase plan shall be prepared by the user department in conjunction with the equipment management department. If necessary, the supplier of the automated picking equipment shall be invited to participate in order to better integrate the system.

4.2.1 The planning shall at least include the logistics technological process, site environment, type of automated picking equipment, system composition, as well as main technical parameters, budgetary funds, and performance-price ratio, etc.

4.2.2 The following factors shall be considered when preparing the plan:

--- According to the overall business needs of the enterprise, the technological process design shall be carried out after technical and economic analysis, and the workshop shall be designed according to the technological process.

--- The sorting efficiency of the corresponding picking equipment, the number of seats for supplying pieces, and the number of sorting partitions shall be selected according to the needs of the technological process, the total amount of sorting business, the time requirements of the operation, and the number of pieces processed per unit time.

--- The type of sorting mechanism shall be selected according to the site environment, and the size range, quality, brittleness, packaging method, and the packaging standardization degree of the items to be sorted.

--- The scalability, easy maintenance, operation simplicity, and error correction ability of the picking equipment system.

--- Practicality. Whether the selected picking equipment conforms to the technological process of logistics, and whether the technological process is suitable for the items to be sorted.

--- Economy. The economic evaluation of the selected automated picking equipment shall reach satisfactory economic and technical indicators.

--- Reliability. The extent to which the sorting equipment system operates without faults and sorting errors.

--- Environmental protection and energy saving.

4.3 The purchase of automated picking equipment shall be subject to bidding and demonstration according to the approved planning and budgetary funds.

4.4 Installation, debugging, and acceptance.

4.4.1 The management personnel, and maintenance and repair personnel of the automated picking equipment shall participate in the installation, debugging, and acceptance of the equipment, and shall master the equipment maintenance and repair methods.

4.4.2 The installation of the automated picking equipment system shall comply with the requirements of working drawings, assembly drawings, and technical instructions.

4.4.3 Equipment debugging shall be carried out in accordance with the technical standards and agreement requirements provided by the supplier.

4.4.4 The main technical performance of the automated picking equipment after installation and debugging shall meet the specified requirements.

4.4.4.1 The technical indicators such as sorting efficiency, sorting error rate, and running speed shall meet the requirements stipulated in the contract.

--- The wiring terminals of field actuators and devices shall be protected and shall not be exposed, and all joints shall be crimped firmly. Detection devices and similar devices shall be arranged neatly, and the optical axis of the light-emitting device and the receiving device shall be aligned. The alarm, early warning, and prompting devices shall work reliably.

--- There shall be overheating, overcurrent, short circuit, and phase loss protection devices for power supply equipment; overload protection devices for linear motors and various strong current parts, and electric drive overcurrent protection shall work reliably.

--- The system status detection function shall be reliable, the monitoring information shall be displayed for hardware detection, and faults shall be alarmed.

4.4.4.6 The main performance requirements of the information system:

--- The information system shall be able to collect, count, summarize, inquire, and print report forms for the item processing information. It shall be able to perform self-checks and record fault conditions on various key executive components and control functions.

--- The system monitoring shall be able to display information such as equipment startup, shutdown, full tank, and fault, as well as the current work, shutdown, and fault conditions of the supplying devices, partitions, and other parts. When a partition is full, it shall be able to sound an alarm, display the number of items, and block the partition.

4.4.4.7 The air pressure of the air pump of the pneumatic system shall be stable, the pneumatic components shall work reliably, and the pneumatic pipeline connection shall be firm and free of air leakage.

4.4.5 Before the equipment is put into production, it shall be checked and accepted by the organization itself or the superior organization, and a written report shall be written and included in the equipment file.

4.4.6 After the equipment is checked and accepted, the transfer to fixed assets, the setup of accounts, the setup of registration cards, and the setup of technical files shall be done in a timely manner.

4.4.7 After the equipment is put into production, all kinds of information on the operation of the equipment shall be collected and recorded in time.

5 Use management

5.1 The use of the equipment shall be managed with special responsibility and follow

the requirements for use.

5.2 The operators shall be familiar with the function and structure of the automated picking equipment being operated, as well as the specification requirements of the items that can be sorted.

5.3 The operators shall correctly use the automated picking equipment in strict accordance with the operating procedures for safety production.

5.3.1 Before starting the machine, the operators shall check whether the power supply and supporting equipment are normal and whether the items to be sorted meet the requirements.

5.3.2 The operators shall start the machine according to the start-up procedure, and operate according to the operation procedure after the equipment runs at the required speed and runs stably.

5.3.2.1 The operators of the sorting areas shall prevent misoperation, and shall pay attention to the indicator lights and the display on the screen. When there is a fault display, the maintenance personnel shall be notified in time. When the equipment and personal safety are endangered, the machine shall be stopped immediately and the maintenance personnel shall be notified.

5.3.2.2 The operators of the partition areas shall carefully inspect and clear the partitions in time. When the partitions are found to be blocked, they shall release the blockades in time to avoid affecting the sorting; the sorting of items shall be monitored, and the maintenance personnel shall be notified in time when the error rate is high.

5.3.3 When the work is over, the equipment shall be shut down according to the shutdown procedure.

5.4 Operators shall be able to deal with various common faults such as the fault that objects jam during the use of automated picking equipment, and take emergency shutdown measures when the equipment fails. Operators and the maintenance personnel shall clear the trouble in time and fill in the “Equipment operation, cleaning, and maintenance status form” (see Appendix A) in detail; if the operators and the maintenance personnel are unable to clear the trouble, they shall protect the site, fill in the “Equipment repair request form” (see Appendix B) as required, and report it to the management personnel for repair in time.

5.5 Operators shall not disassemble the machine and computer without authorization, and add or delete computer desktop icons and modify screen settings. Unless the computer is in a “crash” state, the computer shall not be directly powered off.

5.6 Operators shall do a good job of cleaning and maintenance every day:

respond within 2 hours, and the entrusted organization (including the equipment seller) shall respond within 48 hours.

6.3 When the automated picking equipment is repaired, the user department shall designate a special person to cooperate with the maintenance personnel throughout the operation.

6.4 Routine maintenance shall be carried out on a daily basis, and the inspection of key parts shall be the main operation content.

6.4.1 Check the internal communication of the whole system.

6.4.2 Check whether the switches, buttons, and indicators are in good condition.

6.4.3 Check whether the keyboards, monitors, printers, and label printers work normally.

6.4.4 Check whether the unloading mechanism can be reset normally and flexibly.

6.4.5 Check the air compressor pressure and the pneumatic pipeline for air leakage.

6.4.6 After the routine maintenance, the “Equipment routine maintenance sheet” shall be filled out (see Appendix C).

6.5 The primary grade maintenance shall be carried out every week. In addition to the items required for routine maintenance, the cleaning and lubrication of key parts shall also be the main operation content.

6.5.1 Clean and check the various mechanisms and parts of the machine, such as whether the installation is firm, whether the lubrication is good, and whether there is any abnormal sound.

6.5.2 Clean, check and adjust scanners, barcode readers, and label printers.

6.5.3 Check the belt for damage or deviation.

6.5.4 Check the running condition of the rollers and axles, whether they are worn or deformed.

6.5.5 Check whether the connectors and fasteners are loose.

6.5.6 After the primary grade maintenance of the equipment is completed, fill in the “Equipment maintenance record sheet” (see Appendix D).

6.6 The secondary grade maintenance shall be carried out on a monthly or quarterly basis. In addition to the items required for the primary grade maintenance, parts inspection and adjustment shall be the main operation content.

6.6.1 Check the operation of motors, chains, rollers, belts, etc., and check whether the reducer has oil leakage.

6.6.2 Check whether the connections and joints of power equipment and control equipment are loose, fall off or burn out.

6.6.3 Check whether the connectors, communication interfaces, function modules, and relays are firm and reliable.

6.6.4 Clean, check and adjust the working condition of each circuit board.

6.6.5 Check the applicable function and performance of the system with actual objects according to the relevant technical requirements of the factory.

6.6.6 After the secondary grade maintenance of the equipment is completed, fill in the "Equipment maintenance record sheet" (see Appendix D).

6.7 The tertiary grade maintenance shall be carried out every year. In addition to the various contents required by the secondary grade maintenance, comprehensive inspection shall be the main operation content.

6.7.1 Clean the whole machine roundly and check whether the hinges, buttons, sockets, and other accessories are damaged.

6.7.2 Comprehensively check the operation of scanners, barcode readers, printers, label printers, and air pumps.

6.7.3 Check the oxidation and rust condition of each connection point, clean and tighten them.

6.7.4 Check the working condition and aging condition of all circuit boards.

6.7.5 Submit a complete performance test and functional test report.

6.8 Equipment repair

6.8.1 When the performances and functions of the equipment cannot meet the requirements of good condition equipment after the tertiary grade maintenance, it shall be included in the overhaul project plan for the following year.

6.8.2 The operators shall participate in the pre-inspection, repair, and acceptance of the equipment.

6.8.3 After the overhaul is completed, the equipment management department shall organize acceptance and equipment capability approval, and write a summary of acceptance.

7.4.4 The original asset number of scrapped equipment shall not be re-applied.

8 Technical training management

8.1 Before the use of the automated picking equipment, the seller shall be responsible for providing training materials, user manuals, operation and maintenance procedures, etc.

8.2 The operators shall be trained before taking up the job, master the operation skills of the equipment, and take the job with a certificate after passing the organization's assessment.

8.3 The user organization shall carry out technical training in a planned way to improve the technical level of the operating, maintenance, and management personnel.

9 File management

9.1 A registration card shall be set up for the file of automated picking equipment, and the classifying and numbering shall be uniform with other equipment.

9.2 The file shall mainly include:

--- Original materials such as product standards, inspection standards, inspection certificates, packing lists, operating instructions, and contracts provided by equipment manufacturers.

--- The date of manufacture, purchase, and put into service of the equipment.

--- The acceptance reports of equipment installation and handover.

--- List of equipment accessories, spare parts, and appendant tools, equipment construction drawings, assembly drawings, and technical condition checklist.

--- The summary of the use, maintenance, repairs, inspection records, and overhaul acceptances of the equipment.

--- Technical data of equipment upgrading, accident investigation and analysis reports, performance and function test reports, etc.

--- The problems that exist in the equipment, and the statistics, analysis, and evaluation of the problems.

9.3 When the automated picking equipment is transferred, the files shall be transferred along with it. If the equipment is scrapped, the files can be destroyed.

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