LX-630A

Automatic Conveyance Magnetic Metal Detector



User Manual

For optimum performance and long-term operation with no breakdown, you should first of all read this Operating Manual with appropriate care

Introduction

The Company specializes in producing magnetic metal detectors and clothing machinery and instruments.

The magnetic metal detectors include: the series of LX-630A and so on. The last designed series of LX-630A feature the streamlined outward appearance. A nine-set of magnetic sensitive sensor detection is installed in a range of width of 600mm, which strengthens the detection effect and enhances the reliability. On the operating board of the instrument is installed the display of the detection location for inspecting the location, which can reveal precisely the specific location of the object being detected, the display of the level of sensitiveness, the volume of adjustment of the sensitiveness detection capacity that is required to reveal working status of the instrument, and the dynamic display of sensitiveness on the ten sensors. The instrument is equipped with a new counter and an infrared photoelectric control system. The major control board of the system adopts the most advanced installation technique of electric chips in the world, which results in high reliability and simple periphery circuit. The system is equipped with advanced switch power supply with good anti-interference feature. The voltage ranges within AC85-264V, which only requires an electric motor with appropriate voltage. With the advanced facilities mentioned above, the system features sensitive anti-interference, easy manipulation, speedy detection, complete functions, stable quality, and reasonable price. It can be applied to production lines with consecutive automatic operation as well as man-made automatic detection. The scope of application of it includes: foods, fruits, aquatic products, pharmaceuticals, clothing, knit goods, down quilts and eider down outerwear, toys, bedding, carpets and mat materials, buttons and zippers, chemical products, and industrial materials to detect impurity substances such as draw points, and ferromagnetic materials, etc. Because of the difference of operating principles, the system is unable to detect non-ferromagnetic materials such as fine copper and pure aluminum.

The Company holds the patent right for its products with ZL94227712.0 as its patent license. Actions will be taken against any imitation of the patent technology.

To secure normal operation and prolong operation life, you are requested to read at length the Operating Manual.

Model No.	Height of the Pass(mm)	Standard Test Card and Norms of Steel Ball (mm)
LX-630A-100MM	100	φ 1.0

Model: LX-630A

LX-630A -120MM	120	φ1.2
LX-630A -150MM	150	ф 1.2-1.5
LX-630A -200MM	200	ф 1.5-2.0

- Voltage of the Power: AC100V-240V (single phase); 50-60HZ±10%. The machine will be supplied with AC220V, 50HZ as its standard if there is no special appointment while placing an order of it.
- 2. Power: <140W;
- 3. Width of the Detection Pass: 600mm;
- 4. Speed of Conveyer Belt: 32m/min. (50HZ), 40m/min. (60HZ);
- 5. Adjustment of the Level of Induction: Consecutive adjustment from level 1 to 10;
- 6. Detection Approach: Magnetic induction;
- 7. Warning Pattern: Tingle of an electronic buzzer, pause or reverse of the conveyer belt, and the indication of the electro-luminescent lamp.

Explanations of the Parts:

- 1. The control board of the power source:
 - a) The plug: while a plug receptacle with a good earth wire is plugged in, it is always required to adapt the voltage of the electric motor to the power source.
 - b) The power: the red indicator lamp lights when the switch is on;
 - c) The level: the level of induction increases when the adjustment goes up;
 - d) The AHEAD-BACK: a switch indicates the working status of the electric machine. When it is at AHEAD, the conveyer belt goes forward and stops after warning. When it is at BACK, it reverse after warning;
 - e) The light: infrared opto-electronic switch. When it adapts "On" and the object to be detected can keep off the infrared beam reliably, the instrument detects the circuit. If the object to be detected is lower than 15mm, or if it is translucent, has a light leak and hence cannot keep off the infrared beam reliably, the switch should be put on "OFF". The detecting circuit of the instrument maintains its working condition. Outward interference towards the instrument should be avoided.
- 2. The operational board:
 - a) The counter: six-digit display. The principle of the operation is that if the object to be detected can keep off the infrared beam reliably for one time, the counter accumulative totals one. If the object to be detected is lower than 15mm, or if it is translucent and has light leap, the counter cannot work normally. It counts if the product is up to standard. It does not count if the product is not up to standard. There is a lithium battery in the counter, which lasts 10 years in 25° C. The "0" button indicates erase. The "LOCK" may prevent people from pressing the button wrong. The button "ON", which indicates the working condition, is on the right. The "OFF" disconnects the counter.
 - b) The DETECT 10N: the detection status 10 is a display window that is corresponding to the ten horizontal sensors for the pass of detection. When the electro-luminescent lamplights, it indicates that a foreign matter exists in a location it is passing. If the margin of the display lights consistently, it indicates that there exists outward

interference. If it lights periodically in a certain location, it indicates that there exist pollutants in the corresponding location on the conveyer belt. Interference should be eliminated. The conveyer belt should be cleaned.

- c) The level: there sets up a display of the level of induction for the instrument. The more the light pillars are, the higher the level of the induction of the instrument is.
- d) The monitor: the dynamic induction of the instrument indicates that the more of the light pillars are, the higher intensity the instrument affected from ferromagnetic materials. When it is in operation, it reflects the size of the mass of the ferromagnetic materials and the relevant distance of the detective sensor. If it is not working while the light pillars lights repeatedly, it is advised that we examine whether there exists outward interference, such as high-tension wires, power transformers, electro motors, and mechanical facilities, or whether there is wobble and pollution on the conveyer belts.
- e) The start: the button is start or pause.

Auto-Conveyance Magnetic Induction Metal Detector LX-630A

- 1. Operation Instruction:
 - a) To connect with the alternating current power supply that has a earth wire with appropriate voltage required by the instrument;
 - b) To press "POWER" (the red button on the electric board) and the "START" (on the board of operation), the conveyer belt will start operation. The detection can then begin. The conveyer belt will stop if the "START" is pressed again.
 - c) There installed a display of the level of detection induction and a display of the detection location on the operation control panel where there are an automatic warning device and a counter. The instrument will alarm automatically if it detects draw points or iron containing metals. The indicator lamp will display the location of the detection and the conveyer belt will stop operation. Products that are not up to the standard will be returned to the operators while those that are up to the standard will pass the detection and count. Those that are not up to the standard will not be counted.
- 2. Points for Attention:
 - a) Please test-detect the sample draw points, iron fragments, or the attached parts for detection by the instrument. Make sure that the instrument works normally only if it alarms and the conveyer belt stops in the process of trial detection.
 - b) The materials that could be detected through the instrument are ironwork and iron-containing materials. Non-ferromagnetic materials such as pure aluminum, copper, etc are unable to be detected.
 - c) The instrument is reactive to movable metal materials. Operators are required not to carry any of them in the process of operation.

How to Use	Points for Attention

1) To connect the power line with appropriate power source;	The power line to be used should be insert in the plug receptacle that carries with an earth wire. If it shares a plug receptacle with other electric machines, it might cause interference and is easy to make wrong warnings.
2) To press the button of	The red lamp will light when the instrument is set up an
power supply;	electric circuit.
3) To press the buttons of	The button controls the live wire. When the power is on,
Operation or Pause;	the conveyer belt will be in operation.
4) How to adjust the	If the conveyer belt is deviated, please adjust it with the
conveyer belt.	die nut attached.

3. Features:

- a) The automatic conveyance magnetic induction metal detector LX-630A can detect the varia of steel and iron easily and reliably. The signaler prompts that the ferromagnetic varia has been detected.
- b) The warning device makes sounds when the instrument detects draw points or iron containing materials. At that time, the conveyer belt will pause and the indicator lamp will display the location of the iron containing materials among the objects being detected and return the disqualified products. Efficiency will then be improved greatly.
- c) The instrument is equipped with a counter, which accumulative totals the number of the qualified products.
- d) The adjustment of the sensibility of the operation of the automatic conveyance magnetic induction metal detector LX-630A is in accordance with the size and types of the objects to be detected, which makes it possible to find the ferromagnetic varia and draw points among the products easily.
- e) It improves the capability and reliability of detection greatly due to the adoption of the latest-designed detection device.
- 4. Uses:
 - a) The various needle detection devices of the automatic conveyance magnetic induction metal detector LX-630A may detect the needles, broken needles, and other iron fragments that are hidden in all kinds of sewing products, such as man's clothing, woman's clothing, child's clothing, underwear, *kimono*, jackets, beddings, shoes, caps, gloves, plush toys carpets, and hygienic products. They can also be used in detecting the pharmaceuticals, the foodstuff, including fresh edible fungi, fish, meals, fruits, and their products. The detection of the zippers and buttons for clothing is also possible. It is also possible to detect the iron fragments mixed within the non-ferromagnetic materials such as copper, aluminum, zinc, papermaking, robber, and raw industrial chemicals.
 - b) When the fittings of sewing products such as the zippers, the buttons, and the hooks are being detected, it is always suggested to consider the non-ferromagnetic merchandise such as those that have been demagnetized.
 - c) When the automatic conveyance magnetic induction metal detector LX-630A is being used, operators are required to take off the iron containing objects from their clothes as the instrument is reactive to all the iron containing objects and produce alarm wrongly.
- 5. Points of Attention for Installation:

- a) Before it is put into use, the instrument should be put in a horizontal place where there is no vibration. It is expected to adjust the four boy-bolts until they support the instrument stably and the four direction wheels disconnected with the ground. When the instrument is in a horizontal position, fix the fastening bolts until they do not vibrate. Otherwise, the conveyer belt will sway.
- b) The instrument is not allowed to install on an operating platform made of iron or beside an iron frame.
- c) The instrument is not allowed to install beside a machine that will cause magnetic field as it will cause electricity and interference of magnetic field, which may result in wrong operation of the instrument. These machines include: motor-driven clutch motors, sewing machines, tailoring machines, balers, air-conditioners, high-tension bus-bar ceiling fans, and machines that have rotating mechanism.
- d) The instrument should be installed in a place far away from huge movable iron objects, such as trains, motor vehicles, etc.
- e) The instrument should be far away from materials made of steel and iron, such as iron doors, iron windows. The direction of the major parts of the instrument could be adjusted so as to change the location of the instrument to avoid wrong operation.
- f) The instrument will cause a magnetic field. Operators should pay attention to the credit cards, cards of drawing, telephone cards with them, and telephones around, etc that might be affected by the magnetic field of the instrument.
- g) The instrument should be installed in a temperature surrounding from 0° C to 40° C, a place that will never be lower that the frozen point.
- h) There should not be any flowing dusts, ferrous powder, and abrasive grits in the place that locates the instrument. The place should not be moist and dew forming as well.
- 6. The Adjustment and Installation of the Sensitiveness:
 - a) The level of adjustment should be adjusted to "6-8" for sensitiveness. The level of adjustment should be adjusted to "9-10" in order to detect trivial needle tips and iron fragments. At this stage, higher demand is raised against the interference of the surrounding metals and for the cleanness of the belt by the instrument
 - b) Detection could not be made among the products until one has been sure that the packing and the subsidiary materials such as paper bags, paperboards, nylon packing bags, buttons, and zippers are inactive to the instrument.
 - c) If the conveyer belt pause only because of the subsidiary packing materials, one should adjust the button of sensitiveness from level "8-10" to level "5-7" so as to ensure that the belt will no longer pause only due to the subsidiary materials.
 Note: If the button of sensitiveness is adjusted to level "4" or lower it will be difficult to

Note: If the button of sensitiveness is adjusted to level "4" or lower, it will be difficult to detect trivial metal materials and needle tips.

- d) If the conveyer belt remains pause even after the adjustment of the button of sensitiveness, one should: complete the detection of the packing and the subsidiary materials first before one finalizes the selection of the packing materials so as to make sure the packing and the subsidiary materials will pass the instrument normally.
- e) The power source should be switched off after the completion of the detection. The power line should be extracted from the plug receptacle if the instrument will not be used

for a period of time.

- 7. The Operations of the Instrument:
 - a) To switch on the joint power supply on the electric board and press the button of "START" for operation Please test-detect the sample draw points, iron fragments, or the attached parts for detection by the instrument as test operation. Make sure that the instrument works normally only if it alarms and the conveyer belt stops in the process of trial detection.
 - b) The object to be detected should be put on the conveyer belt lightly if the instrument is operating properly. If there is nothing wrong with the object being detected, it will pass the detection instrument. The counter on the control board will switch from "0" to "1", indicating that 1 detected object is up to the standard.
 - c) The object to be detected should be put on the conveyer belt lightly if the instrument is operating properly. The instrument will alarm automatically if broken needles and iron nails, etc. are detected among the object. The object will hence be returned to the front of the operator. The counter on the control board will not display anything. The disqualified object should be taken away. Press the button of "START" again for the next operation.
 - d) The exact location of the iron fragments detected among the object should be found and taken away. Repeat the detection to make sure there is no further fragments remain in it. It might be possible that there are 2 to 3 iron nails and fragments among the object. The repetition of the detection can ensure the safety.
 - e) There might be wrong judge due to outside interference when the instrument is in operation for detection. So a reconfirmation is required for the product if there finds a warning signal.
- 8. Points for Attention:
 - a) Check up on the conveyer belt frequently to make sure that there are no remains of the broken needles, rust, iron fragments, trivial iron tips other metal fragments, and greasy dirt there. Special attention should also be paid to the reverse side of the belt to see whether it is clean or not. To ensure the cleanness of the belt, it is advised to use wet towels, detergents, and scaling to clean the belt.
 - b) The sensing devise on the conveyer belt should be detected as it has strong magnetic performance, which might be adhered to needles or other metal fragments. Rubberized fabric or other methods are expected to use in order to clean the sensing device so as to make an accurate judge during the next operation.
 - c) The instrument adopts the theory of electromotive force. It makes the detection of the instrument possible that the iron materials will cause sensing when they are in motion in the magnetic field arisen by the detection instrument. The sensitiveness of the vertical motion of the trivial needle tips that are parallel with the motion direction of the magnetic line force is larger than that of the horizontal one. There exists different sensing of detection towards different directions of the needle tips.

Simple and Easy Remedy of the Malfunctions:

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Fault Phenomena	Causes	Solutions

1. The instrument	a) The current is not input	Check up on the plug receptacle to see
does not work		whether the hot line and neutral line are
		in good condition or not, whether the
		power is on or not, and whether the
	b) Durahan and the second (a)	Voltage is normal or not.
	b) Broken safety wire(s)	change the safety wire IOA in the
	c) The problem(s) about the	Change the identical type of switches.
	switch of the current	5
2. The conveyer belt	a) The conveyer belt is too	Fasten the belt appropriately and stop
does not work	loose	fastening when it works.
	b) The triangle conveyer belt	Adjust it appropriately or change a new
	loosens	one.
	c) The inscribed wire of the	Check up and connect the wire.
	d) The electric relay is	Check up on the wiring of the plug
	d) The electric relay is	check up on the wiring of the plug
	e) The button is injured	Check up on the button of "START"
	c) The button is injured.	and change a new one if required.
3. The conveyer belt	a) Iron fragments and other	a) Clean both sides of the
stops or reverse	contaminants adhere to the	conveyer belts and the
upon pressing the	conveyer belt and the	detection devices;
button of "START"	detection devices	b) Change the belt if necessary.
	b) There exists interference	a) Eliminate the interference or be far
	around the instrument	away from the source of
		interference;
		the instrument or the direction of
		the instrument.
	c) The instrument is not	Place the instrument horizontally and
	installed well.	fix the boy-bolts.
	d) The level of sensitiveness	Adjust the button to "5-7". Note: If it is
	is adjusted too high.	adjusted lower than "4", it will decrease
		the detection capability towards the
	e) The drum bearing bears	Change a new bearing that is
	magnetism	demagnetized and imported from
	magnetism	abroad.
4. Trivial iron tips	a) They are smaller than the	Adjust the level of sensitiveness higher
are undetected	standard set by the	appropriately.
	instrument	
	b) The button of the level of	Adjust the level of sensitiveness higher
	sensitiveness is too low.	appropriately.
	c) There exists strong of	Eliminate the interference. Shift the
	electro-magnetism	phase. Connect the earth wire or change
5 The conveyer belt	a) The conveyer belt is	If the belt is deviated to the right fasten
can not work	deviated.	the screws on the side of the instrument
properly		that has no electric motor or loosen the
		screws on the left. Minute adjustment
		for only half circle. If it still could not
		return to the center, adjust the belt for
		half more circle in accordance to the
	The converse half 1	direction of the belt.
	The conveyer belt is edge	Aujust the conveyer belt.

	curled	Loosen the belt appropriately. Note: If the supporting axle of the instrument that has the shield ring for the belt deviated slightly, it does not affect the operation of the instrument.
6. The counter counts wrongly or there are iron materials that are undetected	a) The object to be detected is lower than 15mm and cannot hamper the infrared beam.	 a) Purchase special size photoelectric devices from our Company; b) Detect several objects at the same time so as to hamper the infrared beam completely. However, at this time, the counter cannot count numbers correctly.
	b) The object to be detected is too narrow and can hamper the infrared beam.	The same as above
	c) The object to be detected is translucent or there is space to cause the leak of infrared beam.	Switch the button of "LIGHT" to "OFF" on the electric panel.
	d) The photoemission device is not directed at the receptor	Adjust the direction.
	e) The photo-electricity is injured.	Change a new one
7.Othermalfunctionsthat		Use the instrument in accordance to the Operating Manual.
cannot be resolved.		Contact the Company.

Note:

The attached part for detection is the one that is under the standard testing. Its sensitiveness differs in accordance to the difference of merchants to be detected, their size and circumstances. If it is used under non-standard circumstance, it might happen that the iron fragment might not be detected. The Company will not bear any legal liability if it causes any loss because it is used under such circumstance (non-standard circumstance).

If the norms and the types differ from that of described in the Operating Manual in the production development of the Company, the company will not issue any other announcement.

The aim of the Company: Seeking development based on reliable quality, welcoming customers with attentive and satisfactory service Warmly welcome all the old and new customers nationwide as well as those from abroad to place orders and make purchases.

Product Name: :	Needle Detector Machine
Model No.:	LX-630A

Guarantee Period: One year (After sale service lasts for one year if the instrument is in normal operation. However, the conveyer belt and man-made fault are not included.)