

User's Manual

SMR-400 Needle Detector (Conveyor-Type)

For Information

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<http://www.smr2000.com>

ISO 9001 (2000) & KSA 9001 (2001) Authentication Obtained

Please be sure to read before use for proper use and safety

[Safety Precautions]

Caution: The followings are directly related to the user's safety and should be kept in mind when using the product.

- 1. Do not put your hands in the belt when it is in operation.**
- 2. Do not clean the conveyor belt or other parts of the machine when the power is on.**
- 3. Do not open the cover of the electronic circuit control box.** Doing so while the power is on may lead to electrocution by the electric circuit within.
- 4. Pull the plug out.**
When the machine is not in use or needs to be checked, it is safe to shut off the power supply.
- 5. Always monitor the machine when it is operating.**
When using the machine, always monitor the work process, and have a personnel keep an eye on whether the machine functions normally or not at all times.
- 6. Do not disassemble, remodel, or repair without our company's agreement.**
When repair is needed, always contact our company. We take no responsibility for the accidents and casualties due to the repairs or disassembly of the machine which are not done by our personnel.
- 7. Always keep the workplace and its surroundings in order.**
Disorder in the workplace may cause unexpected accidents.
- 8. Possession of any magnetic or metallic materials is**

prohibited when operating the machine.

If the operator of the machine has magnetic substances (magnets) or materials which contain iron(Fe), the machine will malfunction and proper inspection will be disabled.

9. Possession of any types of card is prohibited when operating the machine.

Because this product uses strong magnets, having cards in possession while working near the product may do damage to the cards.

[Suggestions for choosing the installation site]

Caution: Before installing the needle detector, please read the following suggestions carefully. Proper installation may have crucial effects on the efficiency of the product.

1. Install the product at a place with little external tremor, and keep it fixed at level by using footholds so that the needle detector may not shake due to the internal vibration.

2. Put the product at a place with constant temperature and low moisture.

3. Do not install the product at places where strong electric sparks occur, e.g., near grinders or high-capacity motors.

4. Do not install the product near shaking metals, e.g., highly vibrating machines or moving cars.

5. Install at a place with consistent power supply (in voltage and current).

Do not share power supply with machines that consume a massive amount of electricity (high-capacity air conditioner or motors, for

example). Doing so will cause large fluctuations in electrical voltage.

6. Install the needle detector away from machines emitting a huge amount of electronic or magnetic waves (sewing machine with automatic thread trimmer, cleaning gun, vacuum board, for example).

7. Do not install the product in or around buildings with high-frequency equipments (vinyl adhesive machines, for instance). Do not share the same power supply with them.

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1. Product Description

The needle detector of SMR is a high-tech equipment that detects broken needles and fragments of iron (Fe) contained in all needle works and indicates their locations by part. Then the machine stops working or returns to the input position.

Although needle detectors that utilize magnets do not normally detect non-ferric metals, such as copper, copper alloy, gold, silver, and aluminum, they may respond to them if their size is large enough, especially if they contain fractions of iron.

Consequently, although most zippers and buttons used for needleworks are non-ferric, please use specially gilded ones if iron is contained in them.

2. Product Specifications

Model	SMR-400A	SMR-400B	SMR-400C
Detective Capability (Fe)	1.0mm	1.5mm	2.0mm
Weight	150kg	160kg	170kg
Detective Height	100mm	150mm	200mm
Conveyor Length	1700mm		
Detective Width	400mm		
Belt Speed	30m / min		
List of Electricity	AC 220V, 2P, 50 / 60Hz		
Power	60W/h		

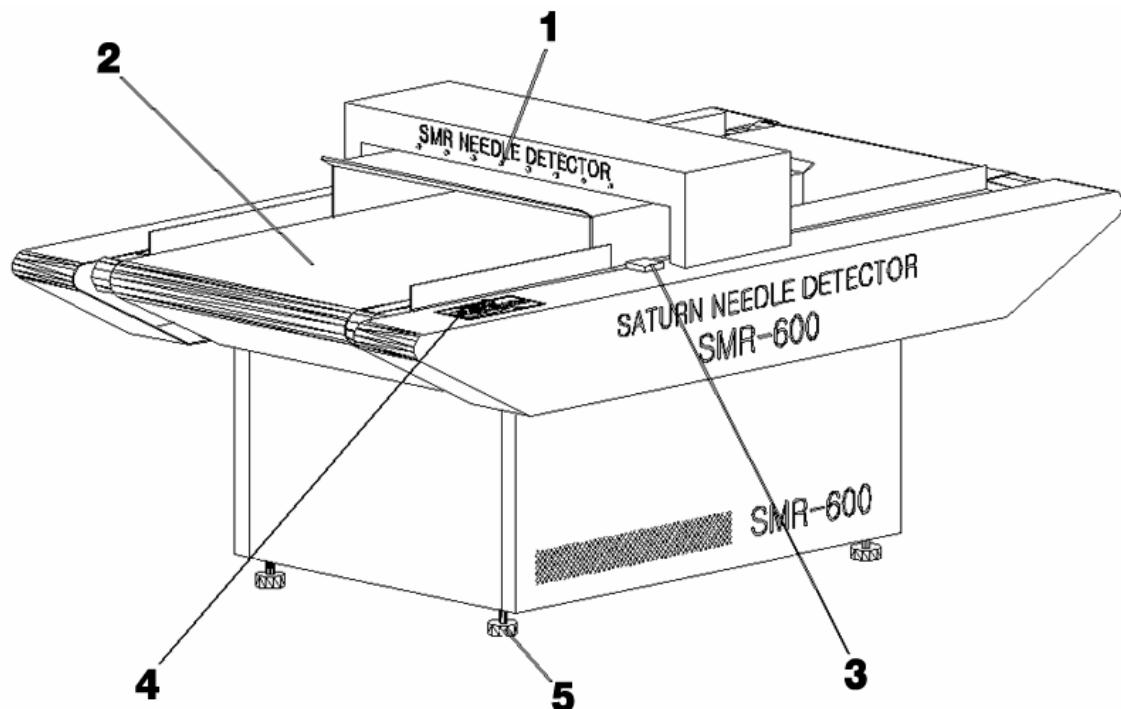
Control of Capability	10 steps
Alarm	Electronic Buzzer, Lamp, Returning of Detection to Start Position

3. Power Supply

The power supply is set at AC 220V 50/60Hz in a single phase mode at the time of shipping. When wishing to use an alternative power supply, please consult our sales agency or our company first.

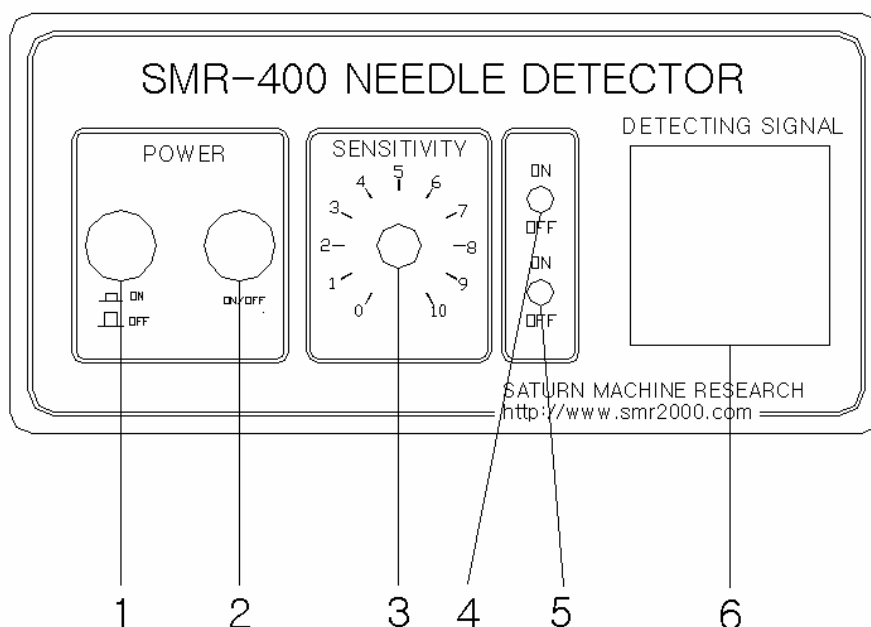
4. Name of Parts

1) Body of needle detector



1. Lamp of each part 2. Conveyor belt
 3. Sensor 4. Operation Panel
 5. Footholds for setting of height

2) Operation panel



1. Power Switch

2. Switch for Operating the Conveyor Belt

Start to operation after this operating switch be turned on.

3. Adjustment Switch for the Volume of Detection Sensitivity

4. Detected Materials Return Switch

When switched on, detected materials return to the input site. When switched off, the lamps indicating the site of detection are lighted without signaling sounds, and the detected materials are not returned to the input site. **Turn the switch on for general use.**

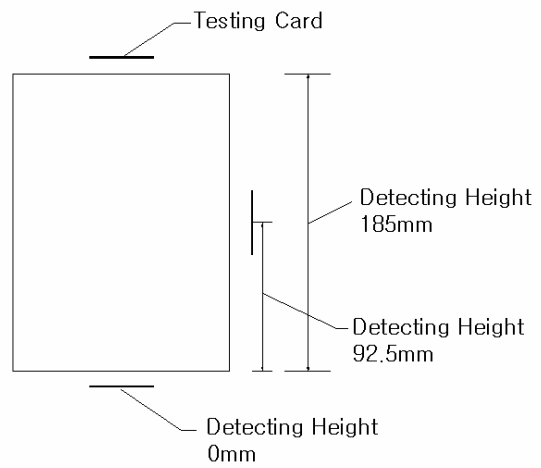
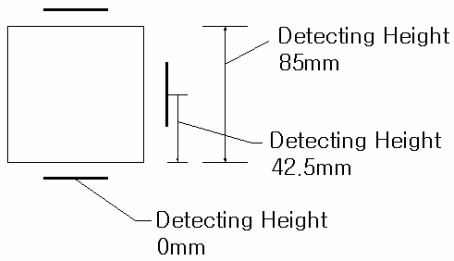
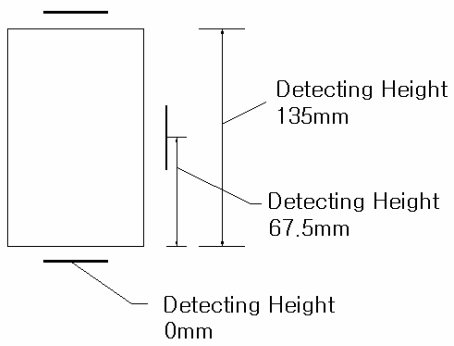
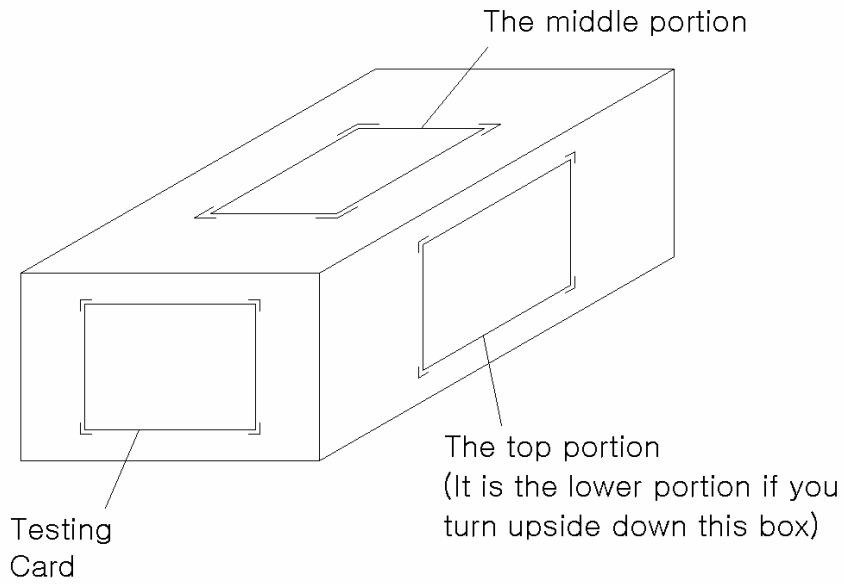
5. Test mode Switch

When this switch is turned on, the detector is in the general mode. When turned off, the detector is in the test mode.

Turn the switch on for general use.

6. Quantity Counter (counts the number of products that pass the detection test successfully).

3) Testing Box



5. Setting the Machine Before Operation

1) How to adjust the degree of detection sensitivity

The degree of detection sensitivity must be set differently in accordance with the place of use.

a) In the case of needleworks without metallic accessories

First, set the adjustment volume of detection sensitivity at 10, which is the maximum, and press the switch to operate the conveyor belt without any metallic materials. If the detection lamp is lighted red, it means that the sensitivity level is too high. Gradually decrease the volume of detection sensitivity until the detection lamp is no longer lighted. **Do not decrease the volume of the detection sensitivity under 5.**

The reason the detection lamp lights up without any metallic materials is that internal vibrations generated by the operation of the conveyor belt or external tremors cause the detector to malfunction. The light-up of the lamp, therefore, means that it is necessary to lower the detection sensitivity to the point that the detection process is not affected by internal or external vibrations.

Next, detection sensitivity needs to be adjusted properly by using the test box. Insert the test card into the test box and execute the detection test. The test box can be tested on its top, side, and bottom face. First insert the test card at the height close to the maximum test height, place the box so that the inserted card will be on the top, and move the box slowly from left to right to test if the detection process is carried out normally on the whole face of the box. Then turn the box upside down so that the inserted card is on the bottom and repeat the process. Lastly, insert the card into the side of the box and repeat the process once again.

If the detection lamp does not stop being lighted in the absence of the test equipment despite the execution of the process above, the problem is due to the improper installation site of the detector.

Read the suggestions for choosing the installation site again and reinstall the detector at a proper site, and then execute the test again.

b) In the case of needleworks with metallic accessories
Even though the zippers and other accessories used for needleworks are made of non-ferric metals, the detector may still respond to them provided that their size is large enough and the detection sensitivity is high enough. As a result, if the needleworks that are to undergo detection process include any metallic accessories, adjust the detection sensitivity by using the following method.

First, set the volume of detection sensitivity at 10 and pass the test product through the detector. Repeat the detection process while gradually lowering the detection sensitivity until the detector does not respond to the metallic accessories. **Do not decrease the volume of the detection sensitivity under 5.** Then execute the detection process at this detection sensitivity over and over.

After that, execute the detection test by using the test box using the same method explained in Section a).

Note: If the detector still responds to the metallic accessories even after lowering the detection sensitivity substantially, it indicates that the accessories contain ferric substances. Remove the accessories from the needleworks and execute the detection test. Otherwise, use specially gilded accessories that are not be detected.

2) Detected Materials Return Switch

When this switch is turned on, a signaling sound is heard if ferric materials are detected and the materials are returned to the site where they were inputted into the detector. When the switch is turned off, the detector goes into the test mode. In this mode, the detection lamp is lit red without the signaling sound, and the detected materials are not returned to the site of input.

Turn the switch on for general use.

Note : If you want to convert into the test mode , you must turn off this switch and again turn on the power.

3) Test mode Switch

When this switch is turned on, the detector is in the general mode.

You must turn on this switch for general using.

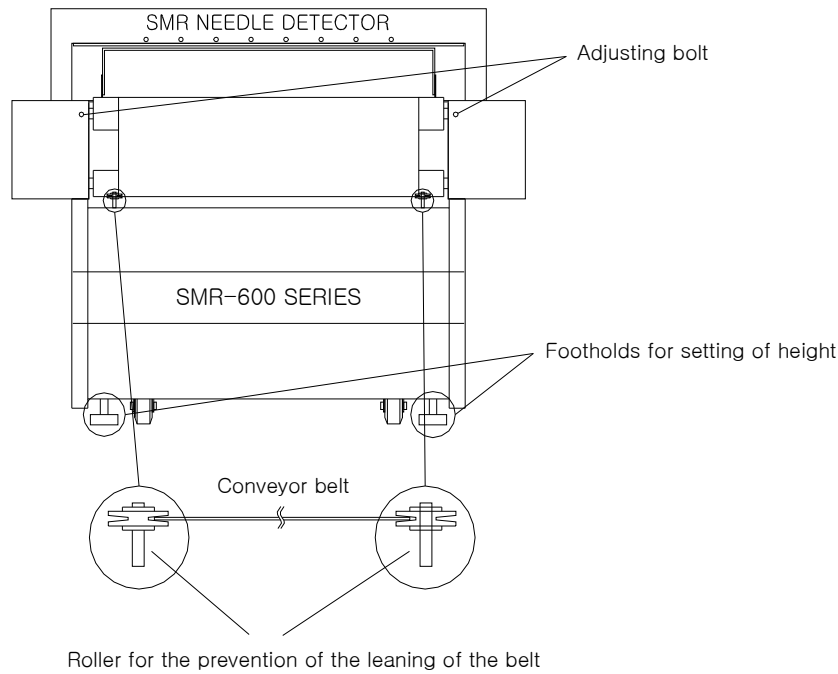
When the switch is turned off, the detector is in the test mode. In this mode, the conveyor belt continually returns and restarts whether it detect or not so that repetitive detection tests are possible. In case the detection lamp is lit red without the signaling sound so you can confirm the detection only by the lamp.

6. How to Operate

- a) **Turn on** the detected materials return switch(4) and test mode switch(5)
- b) Turn on the power.
- c) Press the operation switch (For stable operation it takes 2~3 seconds after pressing the switch.)
- d) Start to operate the machine after lamp of the operation switch has been turned on.
- e) Place the product to be detected on the conveyor.
- f) The machine stop after 5 minuets if there is no use.

7. Maintenance and Repair

1) How to adjust the leaning of the belt



- a) Using the bolt (6mm Allen key) for adjusting the leaning belt, loosen the conveyor belt.
- b) Fasten the bolt very slowly with the belt inserted into the groove in the roller for the prevention of the leaning of the belt, to adjust the tension.
- c) Operate the detector and idle the belt for about 10 minutes. If the belt does not get separated from the roller for the prevention of the leaning of the belt, the adjustment is finished.
- d) If the belt leans to the right, fasten the adjustment bolt on the right slowly and unfasten the adjustment bolt on the left, to adjust the tension. If the belt idles without leaning, the adjustment is finished. If the belt leans to the left, use the same method above in the opposite manner; fasten the left adjustment bolt slowly and unfasten the right adjustment bolt.

2) Cleaning the belt and other parts

After turning off the motor and the power switch and pulling the plug from the socket, polish the machine with a towel and a small amount of water or soaped water. Apply alcohol on severely filthy parts and scrub them softly. When cleaning the whole conveyor belt, be sure to turn the power off. Press a piece of cloth on the belt, and then slowly rotate the conveyor belt with your hand.

Caution: Cleaning the belt while the conveyor belt is in operation may cause accidents. Turn off the power when cleaning the belt.

The conveyor belt is easily made dirty. Keeping the belt clean can prevent its malfunction.

When signaling sounds are periodically heard from a certain place and the detection lamp is lit despite the fact that nothing is put in the detector, it may indicate that there are ferric alien substances in the conveyor belt. Turn off the power and clean the belt thoroughly by rotating the belt with your hand.

Caution: Moisture or soaped water on the surface of the belt may cause the belt to become unclean easily. Refrain from using irritative substances (thinner, benzene, acetone, for instance) and an excessive amount of water, for they can do damage to or deform the belt.

8. Quality Guarantee

The period of quality guarantee for this product is **a year** from the date of contract.

If there are any inconveniences in using the machine or any problems with the product, contact our company at all times. We will take care of them as promptly as possible.

We charge for services after the guarantee period. Please be sure to keep this in mind.