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Continous Band Sealer Machine with Digital Counter

Aditya Chavan[1], Diya Inamdar[2], Prajit Bhabad[3], Prof. Sachin V Tayade[4], Prof. Punam M Chabukswar[5]

[1,2,3]Department of Electrical Engineering, TCOER, Pune
[4,5]Assistance Professor, TCOER, Pune.

A B S T R A C T

A Continuous band sealer is a machine which uses heat and pressure to consistently seal pouch packaging in a continuous fashion. Band sealers often feature adjustable settings and sealing parameters which result in optimal seal quality. Essentially you are sealing under the same conditions for each seal cycle. These machines are less exposed to the human error risks that come with other manually operated machines. Band sealer machines are mostly automatic and require minimal operator input to function. Speed is also an important factor as band sealers are highly suited for high volume sealing projects. They can potentially seal thousands of packaging pieces a day particularly when used in tandem with each other, multi machine/operator & shifts set ups. At its core, the continuous band sealer machine is ingeniously designed to seal packages and bags continuously, providing a secure and uniform seal along the package's edges. This machine stands out for its ability to maintain a consistent sealing temperature and pressure, ensuring that every seal is uniform and meets quality standards. The versatility of the machine allows it to handle a plethora of materials, including polyethylene, polypropylene, and laminates, making it a quintessential asset in a wide array of industries ranging from food and beverage to pharmaceuticals and electronics. The sole purpose of a continuous band sealer machine is to securely seal individual packages and bags with liquids, sprays, powders or grains, and other similar contents. It also uses various packaging materials like aerosol containers, boxes, bags, pouches, cartons, and bottles. Therefore, you can handle everything from pet food and grains to construction rocks with band sealers.

Keywords: Horizontal seal, pouch size,Variable Frequency control mechanical horizontal seal, proximity sensor with digital counter.

Introduction

The pouch is sealed and passed through one or two continuously heated jaws in continuous band sealers. Because the operator of a conveyor does not have to wait for the seal cycle to complete, packaging is completed considerably more quickly than with a bar sealer. For almost any application where quick, safe, hand-fed sealing is required, band sealers with conveyors are utilized. There are two types of continuous band sealers: horizontal and vertical. To accommodate the majority of continuous band sealer packaging applications, we also offer medical band sealers and tabletop continuous conveyor band sealers.A band sealer is a machine which uses heat and pressure to consistently seal pouch packaging in a continuous fashion. Band sealers often feature adjustable settings and sealing parameters which result in optimal seal quality. Essentially you are sealing under the same conditions for each seal cycle.

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A proximity sensor is a device that uses electromagnetic fields or radiation beams to detect the presence of nearby objects without making physical contact. This allows for accurate detection without damaging delicate objects, and it is frequently used in applications such as industrial automation to monitor object position without physical interference or smartphones to automatically turn off the screen when held close to the ear.

Important details regarding proximity sensors:

Non-contact identification: 11

A proximity sensor's main characteristic is its capacity to identify objects without coming into contact with them, which makes it appropriate for delicate objects.

Diverse technologies:

Different types of proximity sensors exist, including inductive (for metal detection), capacitive (for various materials), photoelectric (using light beams), and magnetic sensors, each with its own operating principles and best-suited applications.

Output signal:

When an object enters the sensing range, the proximity sensor generates an electrical signal indicating the object's presence.

A digital counter is an electronic circuit designed to precisely count the number of times a specific event occurs, typically by registering pulses from an input signal, essentially acting as a digital tallying mechanism that stores and displays the count in binary format, often utilizing flip-flops as the fundamental building blocks to record each count increment.

Key points about digital counters:

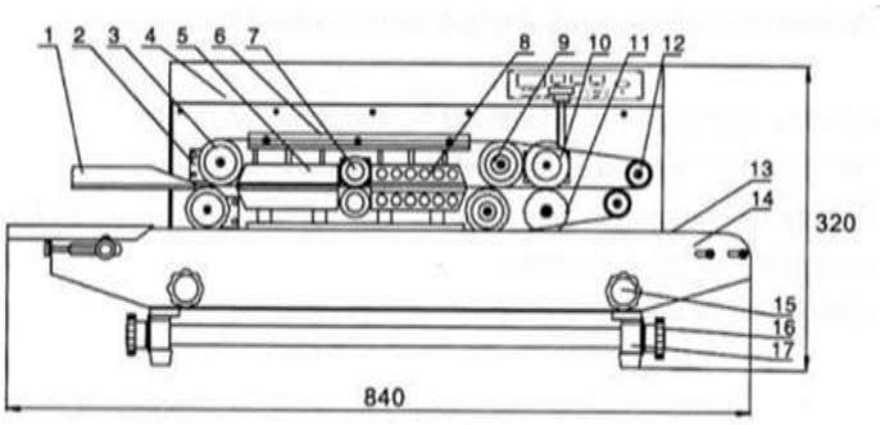
Function:

They count the number of times a signal transitions (like a voltage change) on an input line, effectively acting as a pulse counter.

Building blocks:

Primarily made up of flip-flops, which are basic memory elements capable of storing a single binary digit (bit).

Structure



This machine is made up of rack, speed-regulating mechanism, sealing temperature control system, transmission and conveying system etc.

1. Conveyor
2. Pouch Guide
3. DC Motor
4. Gear Box
5. Heating Jaw
6. Cooling Jaw
7. Middle Pressing Wheel
8. Temperature Sensor
9. Driven Wheel

10. Breaker
11. Emergency Stop
12. ON OFF Switch
13. Seal Switch
14. Fan
15. Axial Flow Fan
16. Thermocouple
17. Heating Pipe
18. Potentiometer
19. Speed Regulating PCB

Literature Survey

M.R. Saraf et.al This paper introduce, Design and Development of an Economical Powder Packaging Automatic Machine Better quality, lower costs, and increased productivity are key components for any business to thrive in the current global environment, as this paper explains. The safest way to deal with the ever-increasing market competition is through low-cost automation. Using standard components to mechanise or automate machines, processes, and systems is known as low-cost automation. Because they require little human intervention, these inexpensive automated machines can be operated by unskilled or semi-skilled workers. This paper discusses the necessity, types, design, and process of automation.

S. Jagadeesan et.al Design And Fabrication Of Automated Sealing Machine This paper introduce,The original function was to authenticate a document, a wrapper for one, like a contemporary envelope, or the cover of a package or container that contained valuables or other items. The design on the impressions created is in relief (raised above the surface) in the majority of conventional dry seal forms because the design on the seal matrix is intaglio (cut below the flat surface).4.The term "seal" is occasionally used in the United States to refer to a color or monochrome facsimile of the seal design, which can be used on official letterheads, flags, and architectural settings, among other places.For instance, the reverse of the one-dollar bill features the Great Seal of the United States, among other uses, and the state flags of several U.S. states display their seals.

Muhammad Afnan Habibi et.al USE OF CONTINUOUS BAND SEALER TO IMPROVE MSMEs' PACKAGING QUALITY DAPUR This essay presents,In the post-pandemic era, all MSME participants are required to sustain and even grow their businesses. The ineffective and careless product packaging procedure was the source of the challenges faced by the MSME Dapur Sangit, Wandanpuro Village, Bululawang, Malang Regency, which works in the catering industry and manufactures processed milkfish meat products. Other than that, a manual hand sealer is still used in the product packaging process, which still uses traditional technology. Naturally, using traditional tools for the packaging process has the effect of making the packaging sloppy and containing flaws, which will lower the product's quality and results in lower market value and quality. Implementing Appropriate Technology (TTG) in the form of machines is the goal of this community service initiative. An automatic continuous band sealer that increases product durability, lowers costs when using traditional technology, and improves packaging quality.

Conclusion

The continuous band sealer machine emerges as an indispensable tool in the packaging industry, epitomizing the zenith of efficiency, versatility, and reliability. Its capacity to deliver uniform, high-quality seals across a diverse array of materials and sizes makes it a linchpin in the operational workflows of myriad industries.As businesses continue to seek solutions that bolster productivity without compromising on quality, the continuous sealer machine stands poised to meet these demands, cementing its status as a cornerstone of modern packaging technology. The continuous evolution of this machine will undoubtedly parallel the dynamic needs of the industries it serves, perpetually enhancing its value and applicability in the face of changing market demands.

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