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“Filter Bag Machine”

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Abstract

In these Project our aim is to make a filter bag making machine in which we can produce filter bags. As pollution is increasing we should have some sort of filtration process everywhere. In these project we have taken polypropylene as a raw material for making the filtration bag. Polypropylene was chosen because it has mechanical properties such as tensile, compressive and flexural which give a better result in it. Nonwoven Fabric Manufacturing Plant. Production of Non-Woven Fabrics for Hygiene, Medical, Automotive, Geotextiles, Construction & Packaging. Nonwoven Fabric Manufacturing Plant. Production of Non-Woven Fabrics for Hygiene, Medical, Automotive, Geotextiles, Construction & Packaging. Introduction Nonwoven fabrics are broadly defined as sheet or web structures bonded together by entangling fiber or filaments (and by perforating films) mechanically, thermally, or chemically. They are flat, porous sheets that are made directly from separate fibers or from molten plastic or plastic film. They are not made by weaving or knitting and do not require converting the fibers to yarn. Non-wovens are flexible, porous, products consisting of one or more fibre layers. The separate fibres may either be preferentially oriented in one direction or may be deposited in a random manner. They are bonded by chemical, thermal or mechanical processes into textile products. Applications of Non-Woven Fabrics: Personal care and hygiene as in baby diapers, feminine hygiene products, adult incontinence items, dry and wet pads, but also nursing pads or nasal strips. Healthcare, like operation drapes, gowns and packs, face masks, dressings and swabs, osteomy bag liners, etc. Clothing: interlinings, insulation and protection clothing, industrial workwear, chemical defence suits, shoe components, etc. Home: wipes and dusters, tea and coffee bags, fabric softeners, food wraps, filters, bed and table linen, etc

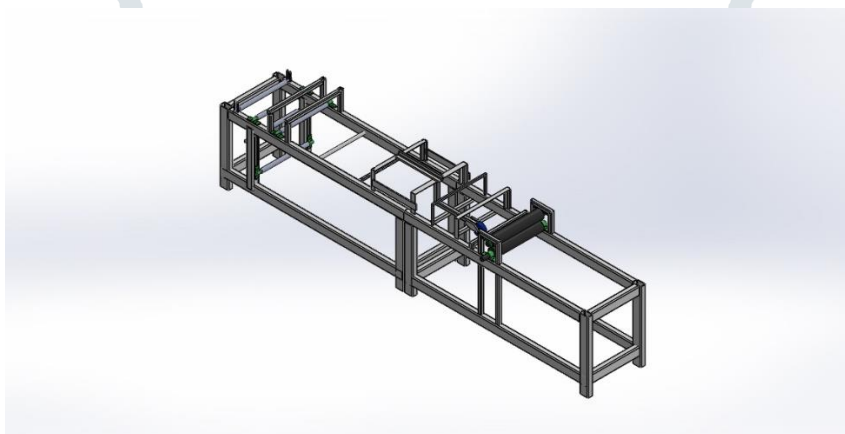
1.Introduction

Filtration technology is very old and goes back to early industrialization. There have been many innovations but some make a step change and extended surface filter bags can be considered one of them. The introduction of extended surface filter bags in filter units are an example where upgrades have become much easier and more powerful than otherwise was the case. The development of extended surface filter bags shows again that a good technology takes time to find its way to industrialization, especially in the primary aluminum industry. But adaptation is fast as the references show us and the ongoing trend teaches us that there is a general acceptance that these filter bags come with real benefits and can be justified, and importantly, deliver the envisioned results. The first introduction of extended surface filter bags should start in time and require the engineers to do the homework first. The steps of implementation are described in this article. This includes conducting onsite quality inspections that have been proven to make a difference and contribute to the success of the project. However, it is known that other smelters see the same positive impacts when they do their evaluations. This will continue to be a driving force for future projects for further introduction of extended surface filter bags as we believe that we are only at the beginning of the use of this technology. In order to investigate the influence of filtering operation and surface treatment on cleaning performance of filter bags, a series of experiments was carried out on a semi-industrial pulse-jet bag house, using peak pulse pressure and fabric acceleration as indices to evaluate the cleaning effect. The innovative aspect of this paper is to investigate the difference of cleaning mechanism and cleaning effect along the length of filter bags. fabric acceleration due to sudden filter media movement.

2. Working



A Material is feed through the feeder roller which is designed in such a way that it feeds single Material at a time. The Material moves forward on the platform through a set of roller (operated by motor and gear arrangement). A sensor is set up just after the setoff roller arrangement which sends signal to the feeder mechanism and stops till the next raw Material is required. The glue brushes are mounted next to the set of roller arrangement under which Material passes and glue gets applied on the material. As the gluing operation is done another sensor sends signal to the flap mechanism and the folding of Material takes place where it get proper envelop shape. The Material pouch is manufactured, an automatic pinion arrangement (driven by sensor and gear arrangement) pushes the envelope out of the machine and get collected in collection area



Advantages

- ✓ The paper pouch of sufficient size and strength can be manufactured.
- ✓ It helps to reduce or eliminate the use of plastic bags
- ✓ It occupies less space and consumes less electricity.
- ✓ The machine is easy to operate as all the function is automatic once paper is feeded.
- ✓ The impact resistance of PP is high.

Disadvantages

- ✓ The Material used in this filter bag is degraded by UV (Ultraviolet) Rays.
- ✓ It's Flammable, but retarded grades available.
- ✓ Low temperature impact strength is poor.
- ✓ Several metals accelerate oxidative degrading.
- ✓ Difficult to bond.

Acknowledgment

We express esteemed gratitude and sincere thanks to our worthy lecturer Guide **Prof. Wasim Shaikh** our vocabulary do not have suitable words benefiting to high standard at knowledge and extreme sincerity, deviation and affection with they have regularly encouraged us to put heart and soul in this work.

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Conclusion

The proper guidance of project head and the sincere efforts of our group have lead to the successfully accomplishment of our concerned projects.

"Filter Bag Making Machine" was interesting to work on and was also gained in this project work...

This knowledge of project will definitely be helpful in our future. So we must maintain that this final year project was an essential part of our engineering education enhancing our technical knowledge and practical skill.

Our aim was to lift the maximum weight in minimum power consumption as to reduce the solar panel and motor cost. Hence we are provided our aim by design a suitable gear box to get maximum mechanical advantages .due to gear box the maximum torque required to lift the load is not coming directly on the motor shaft as we had seen it in the gear box design .so at the end shaft the speed is reduced which we are required & sufficient torque is increase to lift the load. Hence motor is revolving with min. load over its shaft with minimum solar capacity.