

GREASE MANUFACTURING PLANT & EQUIPMENT

Complete Plant Layout & Technology for Production



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| ① GREASE KETTLE | ⑥ GREASE FILLING MACHINE |
| ② EXHAUST BLOWER | ⑦ CAPPING MACHINE |
| ③ PIPING | ⑧ INDUCTION SEALING MACHINE |
| ④ MILLING & DEAERATING SYSTEM | ⑨ BATCH CODER |
| ⑤ DRUM FILLING MACHINE | ⑩ LABELLING MACHINE |

LINUS PROJECTS (INDIA) is an ISO9001:2015 certified Turnkey Project Management Company with expertise in Manufacturing Machinery for Lube Oil Blending Plant and Grease Manufacturing Plant.

INTRODUCTION:

What is Grease:

Grease is a solid or semisolid lubricant formed as a dispersion of thickening agents in a liquid lubricant. Grease generally consists of a soap emulsified with mineral or vegetable oil. Greases are applied to mechanisms that can be lubricated only infrequently and where a lubricating oil would not stay in position. They also act as sealants to prevent the ingress of water and incompressible materials. Grease-lubricated bearings have greater frictional characteristics because of their high viscosity.

Properties of Grease:

True grease consists of an oil and / or another fluid lubricant that is mixed with a thickener, typically a soap, to form a solid or semisolid. Greases are usually shear-thinning or pseudo-plastic fluids, which means that the viscosity of the fluid is reduced under shear.

Thickeners:

Soaps are the most common emulsifying agent used, and the selection of the type of soap is determined by the application. Soaps include calcium stearate, sodium stearate, and lithium stearate, as well as mixtures of these components. Fatty acid derivatives other than stearates are also used especially lithium 12-hydroxy stearate. The nature of the soaps influences the temperature resistance (relating to the viscosity), water resistance, and chemical stability of the resulting grease. Calcium sulphonates and polyureas are increasingly common grease thickeners not based on metallic soaps.

Powdered solids may also be used as thickeners, especially as clays. Fatty oil-based greases have also been prepared with other thickeners, such as tar, graphite, or mica, which also increase the durability of the grease. Silicone greases are generally thickened with silica.

Types of Grease:

Grease is classified into two class

A) Soap type grease:

1. Lithium Grease
2. Calcium Grease
3. Aluminium Grease
4. Lithium Complex Grease



B) Non-Soap type Grease:

1. Urea Grease
2. Synthetic Grease
3. Bentonite Grease



Additives:

Some greases are labelled "EP", which indicates "extreme pressure". Under high pressure or shock loading, normal grease can be compressed to the extent that the greased parts come into physical contact, causing friction and wear. EP greases have increased resistance to film breakdown, form sacrificial coatings on the metal surface to protect if the film does break down, or include solid lubricants such as graphite or molybdenum disulfide to provide protection even without any grease remaining.

Linus Projects Supply mainly 3 Types of Grease Kettle (Reactor)

1. Pressure Kettle (Reactor)
2. Non-Pressure kettle (Reactor)
3. Bottom Conical Kettle (Reactor)



Pressure Kettle (Reactor):

Double Motion Counter - Rotating Agitator Stirrer consisting of a stationary mounted drive Assembly and Grease Kettle Body that can be manually raised and lowered. A Flush Bottom Handwheel-operated Discharge/Sampling Valve is located on the Kettle's bottom.

Our Kettle is Autoclave-type Pressurized 6 kg Working capacity the Kettle comes complete with a double Motion Counter - Rotating Agitator Stirrer basically consisting of a Stationary Mounted Drive Assembly and Grease Kettle Body that can be manually raised and lowered - similar to a Drill Press Arrangement. Kettle consists of two dishes and a shell. The bottom dish fitted with a flush bottom discharge valve. The agitator assembly consists of a simplex designed system where shafts fitted with agitators thoroughly blend the grease as well as move the entire mass. Scrapers are provided at the sides and bottom of the agitator assembly.

Non-Pressure kettle (Reactor):

Kettle consists of the bottom dish, shell & top lid. The bottom dish fitted with a flush bottom discharge valve and one drain valve ball type for sample removing, testing, and checking. The agitator assembly consists of a simplex designed system where shafts fitted with agitators thoroughly blend the grease as well as move the entire mass. Scrapers are provided at the sides and bottom of the agitator assembly.

Bottom Conical Kettle (Reactor):

The Autoclave-Style Grease Kettle can be used for the complete grease manufacturing cycle - saponification, grease finishing, and cooling. However, Processing time is extended when compared to saponification being performed in a Linus Projects Grease Base Reactor. The Reactor with its jacketed vessel construction - jackets over both the shell and cone sections - and double-wall construction inner circulation tube offers a greatly increased surface area for transfer of heat to the soap. Coupled with this is the dramatically increased rate of product circulation brought about by the bottom propellor agitator that operates at full or half motor speed. This type of agitation/mixing action ensures a homogeneous soap base for transfer to the Grease Finishing-Cooling Kettle where the balance of oils and additives are charged and the final grease product manufactured.

Milling and Deaerating System:



The Grease Milling and Deaerating System is one of the Equipment in the Grease manufacturing process, specifically designed for refining and enhancing the quality of grease formulations. This integrated system combines milling and deaeration processes, ensuring the uniformity, consistency, and removal of entrapped air in the grease product.

Grease Toothed Colloid Mill:



A Grease Toothed Colloid Mill is a specialized machinery designed for the efficient processing of grease and lubricants.

This innovative mill employs a unique toothed rotor and stator arrangement to effectively emulsify, homogenize, and disperse grease particles, resulting in a smooth and consistent product.

Deaerator:



A Deaerator is a device designed to remove gases and moisture from liquids, typically fluids and semi-fluids. It is commonly employed to eliminate oxygen, trapped air bubbles, and dissolved gases in oil. The presence of air pockets and gases in oil can lead to significant damage to the quality and lifespan of grease. Deaerators are extensively utilized in Grease Manufacturing Plants for this purpose.

FEATURES:

1. The grease deaerator effectively eliminates entrapped air and gases from the grease, preventing issues such as foaming and oxidation during application.
2. By reducing the presence of volatile compounds, the deaerator contributes to the stability and longevity of the grease, ensuring consistent performance over time.
3. The removal of air and gases results in a more homogenous grease mixture, enhancing its lubrication properties and preventing potential equipment wear.
4. Modern grease deaerators are designed with ease of cleaning in mind, meeting stringent hygiene standards and ensuring product purity.

Drum Filling Machine:



Crafted for efficiency, the Drum Filling Machine by Linus Projects is tailored to precisely fill large drums with grease, ensuring both accuracy and consistency. This machine stands as a pivotal addition to Linus Projects' diverse range of packaging solutions, streamlining bulk packaging operations while unwaveringly upholding the brand's synonymous high standards of quality.

FEATURES:

1. Linus Projects' Drum Filling Machine is specifically crafted for bulk packaging, excelling in the efficient filling of large drums.
2. At the core of Linus Projects' Drum Filling Machine is precision, achieved through the integration of weight-based filling technology.
3. Designed with flexibility in mind, the machine can accommodate various drum sizes, ensuring versatility to meet the diverse packaging requirements within the grease industry.
4. The inclusion of a Control system empowers operators with precise control over the entire filling process, enhancing the overall efficiency and accuracy of the Drum Filling Machine.

APPLICATIONS:

1. Lube Oil and Grease Industry
2. Industrial Lubricants
3. Chemical Manufacturing

Grease Filling Machines:



Linus Projects, a distinguished name in industrial machinery, introduces its cutting-edge Grease Filling Machines, setting new standards in precision and efficiency for the lubricant industry. Meticulously crafted to cater to the unique demands of grease formulation

and packaging, our Grease Filling Machines seamlessly blend innovation, adaptability, and reliability.

FEATURES:

1. Grease Filling Machines offer adaptability across a spectrum of filling capacities. From smaller containers to larger drums, our machines cater to a diverse range of packaging needs, ensuring versatility for various grease formulations.
2. At the heart of our Grease Filling Machines lies advanced Programmable Logic Controllers (PLC), providing unparalleled precision and control. This automation ensures consistent and accurate fills, adhering to the exact specifications of each grease formulation.



3. Designed to accommodate various container sizes, our Grease Filling Machines provide flexibility in packaging options. Whether it's tubes, jars, or Drums.

4. Our Grease Filling Machines deliver with high-speed operation. This not only boosts overall productivity but also reduces production time, making our machines an asset for streamlined operations.

Capping Machine:



The capping machine is composed of a Cap Vibrator responsible for cap orientation and a Capping Unit. Within the vibratory hopper, caps are fed and meticulously oriented for proper positioning. Subsequently, the appropriately oriented caps are directed through a chute and supported by spring-loaded fingers at the end. As the containers move away from the filling station, they proceed to the capping unit, where they pick up the caps and advance toward the capping head. The caps are securely tightened using a magnetic clutch system. Finally, the capped bottles exit the machine via a discharge conveyor. This system ensures a streamlined and efficient capping process for the bottles.

FEATURES:

Linus Projects Capping Machine is compatible with a diverse range of filling machines, including automatic, mechanical, volumetric, weigh metric, and gravity filling machines.

Equipped with adjustable capping heads, this machine provides flexibility to accommodate various container sizes and cap types, ensuring a tailored and efficient capping solution.

To enhance precision and control, Linus Projects integrates state-of-the-art PLC-based controls into the Capping Machine. This empowers operators with meticulous oversight, allowing them to fine-tune and monitor the capping process with accuracy.

The seamless integration of the Capping Machine into PLC-based filling lines exemplifies Linus Projects' commitment to efficiency and automation. This feature ensures synchronized and automated operations, elevating the overall performance and reliability of the capping process.

Induction Sealing Machine:



Induction Sealing Machine assumes a pivotal role in the conclusive phases of the production process. Engineered by Linus Projects, a prominent Indian manufacturer, this specialized machine is meticulously crafted to deliver a dependable and secure seal to grease containers through the innovative technology of induction sealing. Serving as a crucial addition to Linus Projects' expansive range of packaging

solutions, the Induction Sealing Machine plays a key role in upholding the integrity of the final product, providing a sense of security for both manufacturers and consumers.

FEATURES:

1. The Induction Sealing Machine incorporates advanced technology, leveraging electromagnetic induction to form a hermetic seal on containers containing grease.
2. Designed with adaptable sealing capacities, the Induction Sealing Machine accommodates a broad spectrum of sizes and shapes for grease containers.
3. The non-contact sealing process eliminates the necessity for direct interaction between the machine and the product, thereby diminishing the risk of contamination.
4. PLC-Based Control System: Operators exercise precise control over sealing parameters, encompassing temperature and duration.

Batch Coder / Laser Printer



In the concluding phases of the production process, the Laser Printer takes on a vital role as an essential component. Developed by Linus Projects, a prominent Indian manufacturer, this sophisticated printer utilizes state-of-the-art inkjet technology to imprint crucial information on lube oil containers. Positioned as a pivotal addition to Linus Projects' extensive array of packaging solutions, the Inkjet Printer guarantees that every product

feature essential details, thereby contributing to regulatory compliance, traceability, and effective communication with consumers.

FEATURES:

Linus Projects' Laser Printer achieves high-resolution printing, guaranteeing the production of clear and legible markings on containers of lube oil.

The Laser Printer is equipped to support variable data printing, enabling the customization of each print with dynamic information like batch numbers, production dates, and other pertinent details.

With the utilization of quick-drying ink, the printer minimizes the risk of smudging or fading, ensuring the integrity of markings throughout the packaging process.

Seamlessly integrating with Linus Projects' packaging systems, the Laser Printer offers a synchronized printing process that aligns seamlessly with the overall production line.

Labelling Machine



In the realm of grease packaging, where visual appeal and accurate product information are paramount, the labelling machine stands out as a pivotal element in the packaging process. Crafted by Linus Projects, a prominent Indian manufacturer, this specialized machine takes centre stage in ensuring the precise and efficient application of labels to

grease containers. Serving as an integral component of Linus Projects' comprehensive packaging solutions, the Labelling Machine not only elevates the aesthetic presentation of products but also plays a crucial role in effectively communicating essential information to consumers.

FEATURES:

1. Linus Projects' Labelling Machine is meticulously crafted for high-speed application, guaranteeing rapid and efficient labelling of grease containers.
2. In the precision-focused realm of Grease packaging, the Labelling Machine excels by ensuring the accurate placement of labels.
3. Offering versatility, the Labelling Machine can adapt to variable label sizes and shapes, accommodating a range of designs for diverse grease containers.
4. The seamless integration of the Labelling Machine with printing systems allows for the inclusion of crucial product information, such as batch numbers, expiry dates, and other regulatory details.
5. With user-friendly controls, operators enjoy easy access to settings for label size, placement, and speed, enhancing the overall usability of the machine.

Carton Taping Machine



The Carton Taping Machine emerges as a crucial component in the final stages of the packaging process. Engineered by Linus Projects, a leading Indian manufacturer, this specialized machine is designed to streamline the carton sealing process, ensuring that lube oil products are securely packaged and ready for distribution. As an integral part of Linus Projects' comprehensive line of packaging solutions, the Carton Taping Machine not only enhances the

efficiency of packaging lines but also contributes to the overall integrity of the final product.

FEATURES:

1. The Carton Taping Machine by Linus Projects is optimized for high-speed taping, ensuring swift and efficient sealing of lube oil cartons.
2. Linus Projects' Carton Taping Machine provides operators with the flexibility to adjust tape parameters, accommodating various carton sizes and specifications.
3. Precision is paramount in carton sealing, and the Carton Taping Machine delivers with consistent and secure sealing.
4. The machine seamlessly integrates with packaging conveyor systems, contributing to a synchronized and automated carton sealing process.

Industry Applications:

1. Lube Oil and Grease Industry
2. Automotive Lubricants
3. Industrial Packaging

We are experienced Grease Manufacturing Plant Equipment Manufacturers & Suppliers in India and all over the Globe. Our goal is to provide world-class service through innovative, reliable manufacturing and supply of specialized high-end products. Our team is always ready to assist you with equipment designed for your specific requirements.



LINUS PROJECTS (INDIA)
 Leaders in Turnkey Projects management and manufacturing services























VALUED CLIENTS

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