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BJVP Grease Technology

Beijing VP Co.,Ltd.



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01

Lithium Based Grease Production

POWERPOINT DESIGN

Raw Material Preparation and Saponification

A graphic for step 01, featuring a large number '01' in a pink-to-orange gradient, overlaid on a white trapezoidal shape. The background is a photograph of a rugged, rocky landscape under a blue sky with scattered clouds.

01

Raw Material Selection

Base oils like mineral or synthetic oil are chosen for their stability and performance. Fatty acids such as 12-hydroxystearic acid are key to forming the soap structure.

Additives including antioxidants and rust inhibitors are prepared to enhance the grease's longevity and protect against corrosion.

A graphic for step 02, featuring a large number '02' in an orange-to-pink gradient, overlaid on a white trapezoidal shape. The background is a photograph of a rugged, rocky landscape under a blue sky with scattered clouds.

02

Saponification Process

Base oil is heated to 100-115°C in a reaction vessel. Fatty acids are added and stirred until dissolved. Lithium hydroxide is then slowly introduced to initiate the saponification reaction.

Temperature and stirring speed are closely monitored to ensure complete reaction and formation of lithium soap.

A graphic for step 03, featuring a large number '03' in a pink-to-orange gradient, overlaid on a white trapezoidal shape. The background is a photograph of a rugged, rocky landscape under a blue sky with scattered clouds.

03

Refining and Cooling

After saponification, the mixture is heated to 180-220°C for refining. This step ensures the lithium soap is fully mixed with the base oil, creating a uniform structure.

The material is then cooled to 120-150°C before proceeding to the next step.

Homogenization and Packaging



Homogenization Techniques

Homogenization is performed to achieve a consistent texture and viscosity. This process ensures the grease has a uniform appearance and performance.

Additives are incorporated during this stage to tailor the grease' s properties for specific applications.



Quality Control and Testing

The lubricating grease' s cone penetration is tested to ensure it meets the required specifications. This test measures the consistency of the grease.

Adjustments are made if necessary to ensure the product is within the desired quality range.



Packaging and Storage

Once the grease is blended evenly and passes quality control, it is packaged in appropriate containers.

Packaging materials are chosen to protect the grease from contamination and ensure safe storage and transportation.



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02

Lithium Calcium Based Grease Production

POWERPOINT DESIGN

Raw Material Preparation and Saponification



Raw Material Composition

In addition to base oil and fatty acids, calcium hydroxide is prepared. This additional component helps form the lithium calcium soap.

The selection of high-quality raw materials is crucial for the final product's performance and stability.



Saponification Reaction

The base oil is heated in a reaction kettle and mixed with fatty acids. Lithium hydroxide and calcium hydroxide are then added to initiate the saponification reaction.

The reaction conditions are carefully controlled to ensure the formation of lithium calcium soap, which provides unique properties to the grease.



Refining Process

The mixture is heated to 180- 220°C for refining. This step ensures the lithium calcium soap is fully integrated with the base oil.

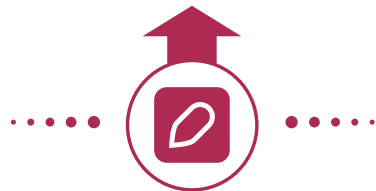
The refining time is adjusted based on the specific formula and product requirements to achieve the desired structure.

Cooling and Final Processing



Cooling and Temperature Control

After refining, the material is cooled to 120- 150°C. Proper cooling is essential to maintain the grease' s structure and prevent degradation. The cooling rate is controlled to ensure uniformity throughout the batch.



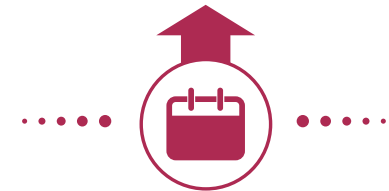
Homogenization and Additive Addition

Homogenization is performed to ensure the grease has a consistent texture. Additives are added to enhance properties such as oxidation resistance and wear protection. The final product is tested for consistency and performance to ensure it meets industry standards.



Packaging and Quality Assurance

The grease is packaged in suitable containers after blending. Quality assurance checks are conducted to ensure the product is free from defects. Packaging is designed to protect the grease from environmental factors and ensure it remains in optimal condition until use.



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03

Composite Lithium Based Grease Production

POWERPOINT DESIGN

Raw Material Preparation and Saponification



Raw Material Selection

Base oils and major fatty acids such as 12- hydroxystearic acid, sebacic acid, or azelaic acid are selected. These components contribute to the grease' s performance and stability.

Additives like antioxidants, rust inhibitors, and extreme pressure anti- wear agents are prepared to enhance the grease' s properties.

Saponification Reaction

The base oil is heated in a reaction kettle and mixed with various fatty acids. Lithium hydroxide is slowly added to initiate the saponification reaction at 85- 105°C.

The reaction is closely monitored to ensure complete formation of the fatty acid composite lithium soap.

Refining and Mixing

After saponification, the mixture is heated to 180- 220°C for high- temperature refining. This step ensures the composite lithium soap is fully mixed with the base oil.

The refining process is adjusted based on the specific formula to achieve a uniform and stable structure.

■ Cooling and Final Processing



Cooling and Temperature Control

The material is cooled to 120- 150°C after refining. Proper cooling is essential to maintain the grease' s structure and prevent degradation. The cooling process is carefully managed to ensure uniformity throughout the batch.

Homogenization and Additive Blending

Homogenization is performed to ensure the grease has a consistent texture. Various additives are blended to improve the grease' s performance in different applications. The final product is tested for consistency and performance to ensure it meets industry standards.

Packaging and Quality Control

The grease is packaged in suitable containers after blending. Quality control checks are conducted to ensure the product is free from defects. Packaging is designed to protect the grease from environmental factors and ensure it remains in optimal condition until use.

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04

**Composite Calcium
Sulfonate Based Grease
Production**

POWERPOINT DESIGN

Raw Material Preparation and Conversion



Raw Material Composition

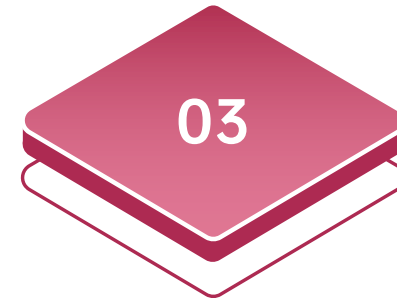
Base oil, high alkali calcium sulfonate, fatty acids, metal oxides like calcium hydroxide, and conversion agents such as acetic acid or alcohols are prepared.

These components are essential for the formation of the composite calcium sulfonate structure.



Conversion Reaction

Base oil and calcium sulfonate are added to the reaction vessel and heated to 60- 80°C. The mixture is stirred until fully dissolved and mixed. Conversion agents are then added and stirred for a period to form a preliminary mixture.



Saponification Reaction

12- hydroxystearic acid, boric acid, calcium hydroxide, and other components are added for the saponification reaction. The mixture is heated to 120- 150°C. The reaction is carefully controlled to ensure the formation of the composite calcium sulfonate structure.

Refining and Final Processing



High Temperature Refining

The mixture is heated to 180- 220°C for high-temperature refining. This step ensures the grease structure is stable and uniform.

The refining process improves the grease's performance and longevity.



Packaging and Quality Assurance

The grease is packaged in suitable containers after blending. Quality assurance checks are conducted to ensure the product meets industry standards.

Packaging is designed to protect the grease from contamination and ensure safe storage and transportation.



Cooling and Homogenization

After refining, the material is cooled to 120- 150°C. Homogenization is performed to achieve a consistent texture.

Additives are incorporated to enhance the grease's properties for specific applications.



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05

Food Grade Lubricating Grease Production

POWERPOINT DESIGN

Raw Material Preparation and Workshop Environment



Raw Material Selection

Food- grade base oils, thickeners like lithium fatty acid soap or polyurea, and approved additives such as antioxidants and rust inhibitors are selected.

These materials must comply with strict regulations to ensure they are safe for incidental food contact.



Cleanroom Production

The production takes place in a cleanroom environment to prevent contamination. This ensures the grease is suitable for use in food processing facilities.

Strict hygiene protocols are followed to maintain the cleanliness of the production area.



Packaging Standards

The grease is packaged in a workshop that meets hygiene standards. Specialized packaging containers are used to ensure the product remains uncontaminated.

Packaging materials are chosen to protect the grease and comply with food safety regulations.

■ Production and Quality Control



Production Process

The production process follows strict guidelines to ensure the grease meets food-grade standards. Each step is carefully monitored to prevent contamination.

The final product is tested to ensure it complies with the required specifications.

Quality Assurance and Testing

Quality control checks are conducted throughout the production process to ensure the grease is free from contaminants.

The final product is tested for consistency, performance, and compliance with food safety regulations.

Storage and Distribution

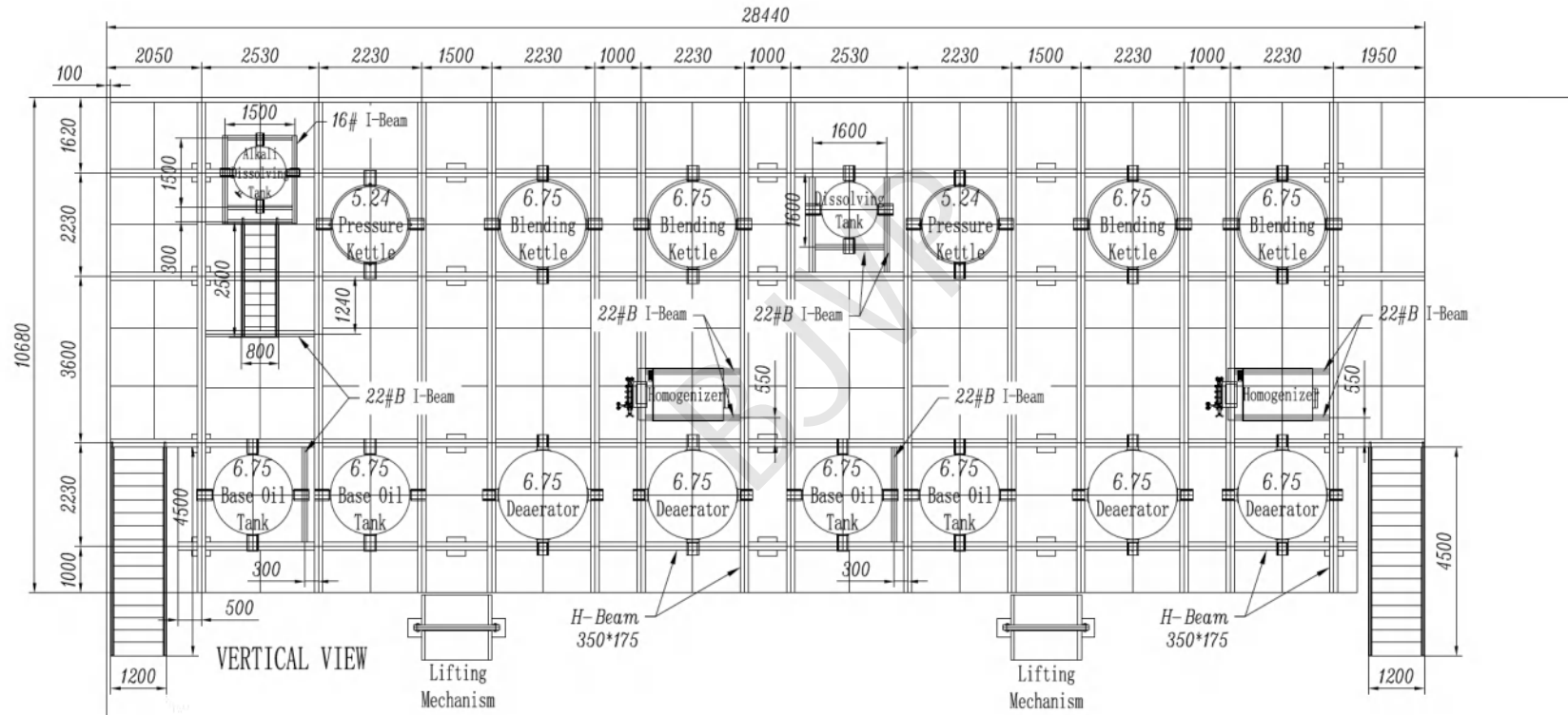
The grease is stored in a controlled environment to maintain its quality.

Distribution channels are carefully managed to ensure the product reaches customers in optimal condition.

Packaging and storage methods are designed to protect the grease from environmental factors and ensure it remains safe for use.

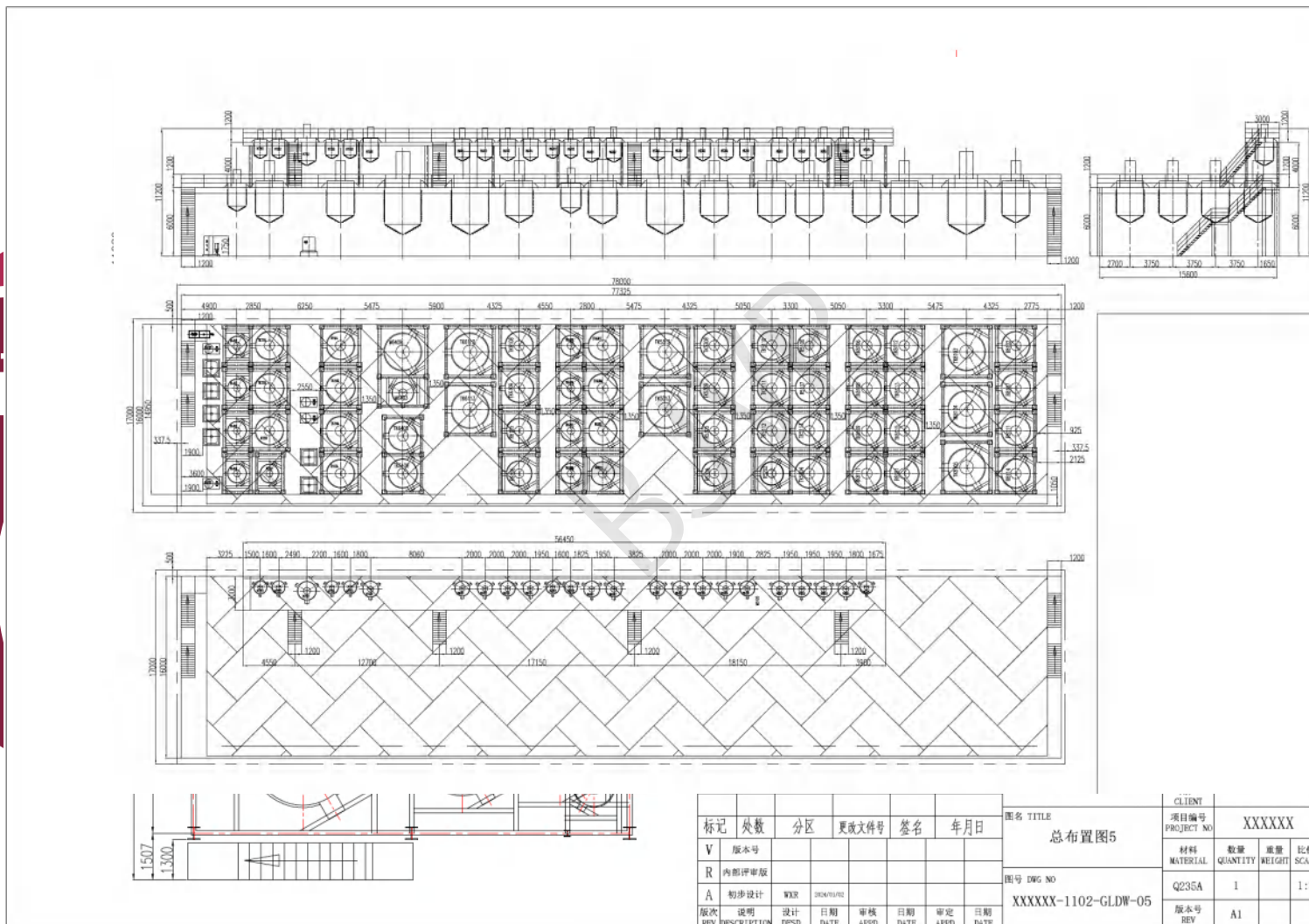


Lubricating grease process layout diagram



		北京威浦实信科技有限公司 BEIJING VP CO., LTD.	项目名称	
			用户	CLIENT

Lubricating grease process layout diagram



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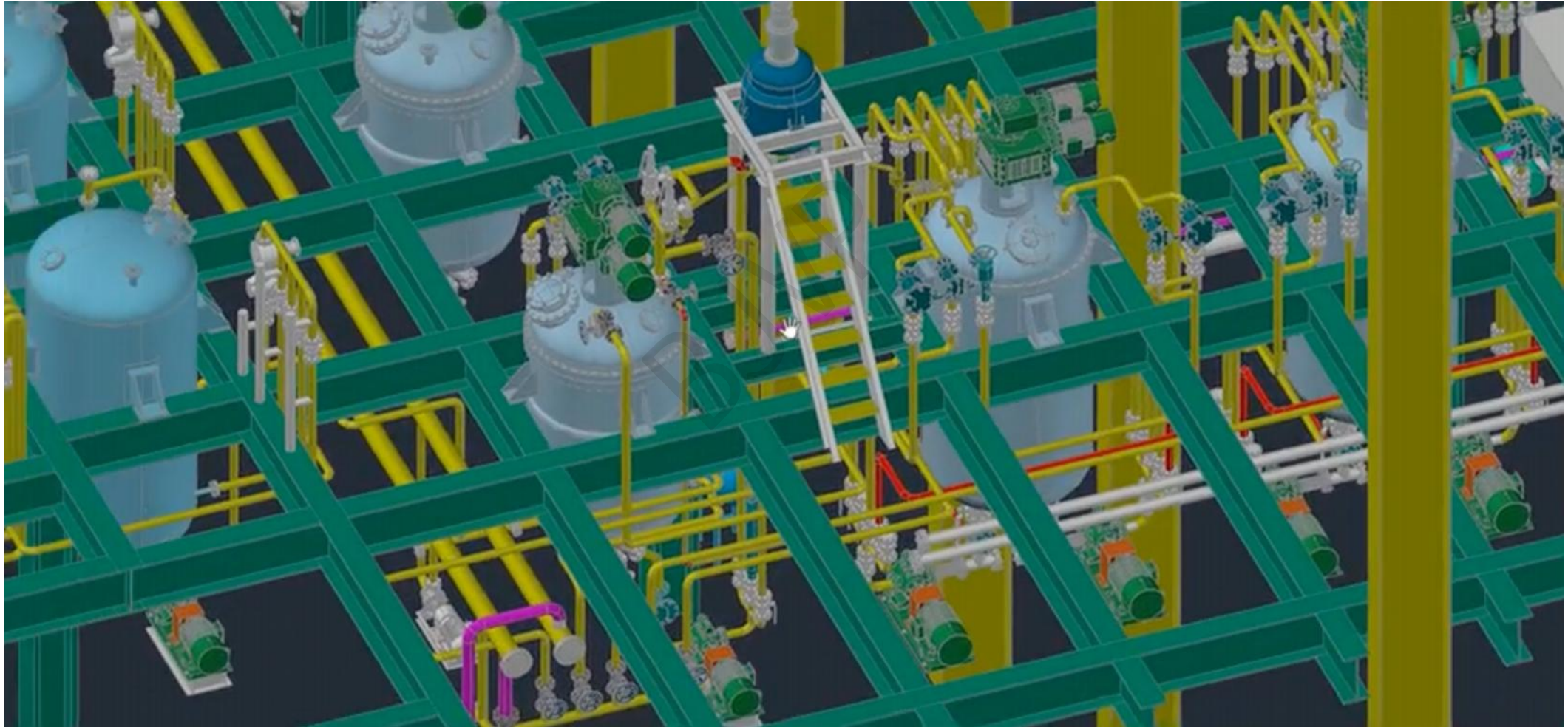
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Lubricating grease process layout diagram



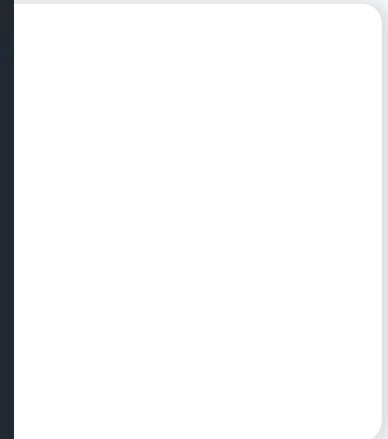
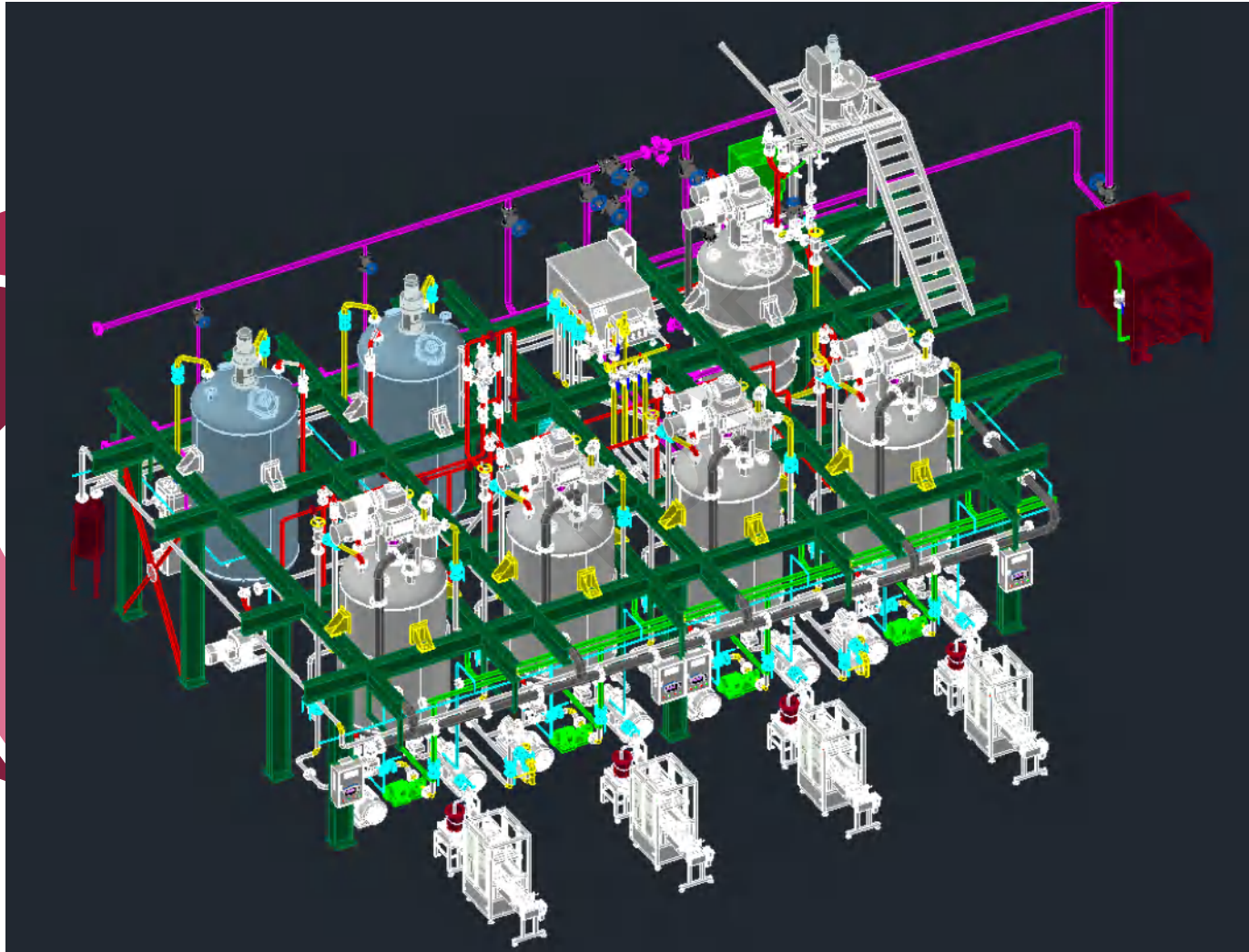
High Technology



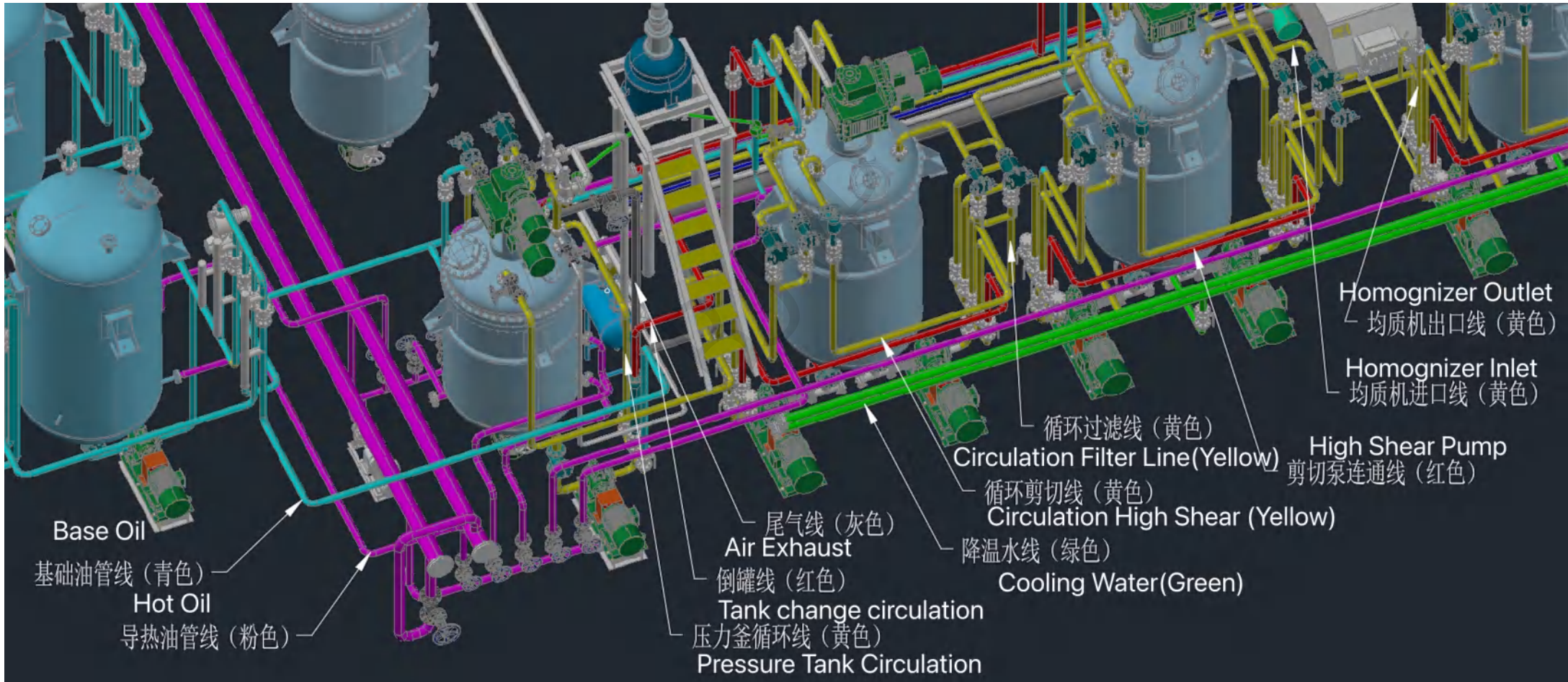


Lubricating grease process layout diagram

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Lubricating grease process pipeline arrangement

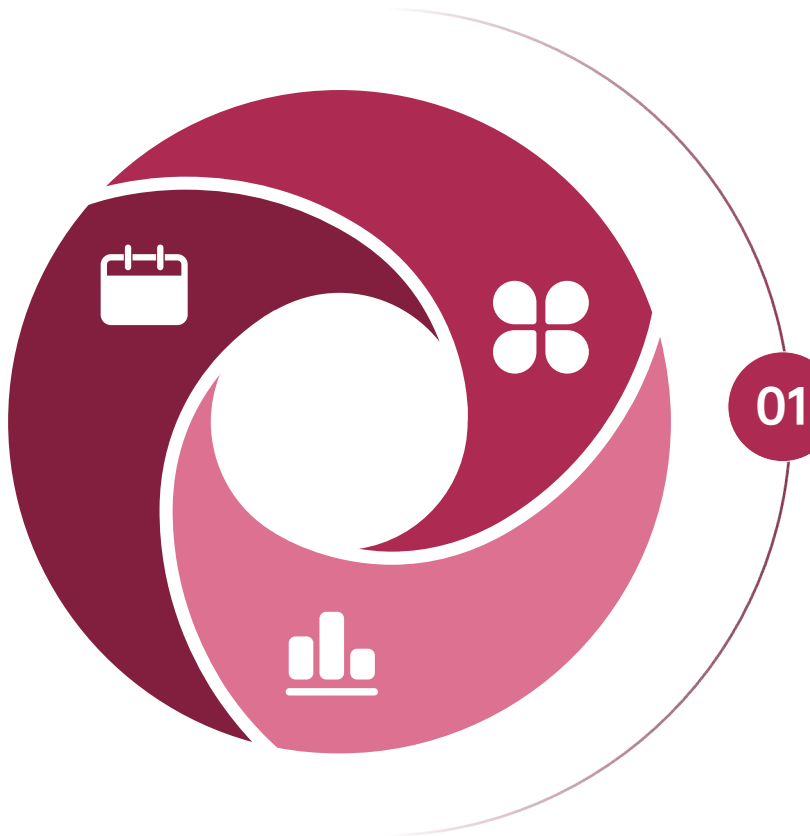


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Lubricating Grease Production Process

Lubricating grease
main equipment
1-Shearer

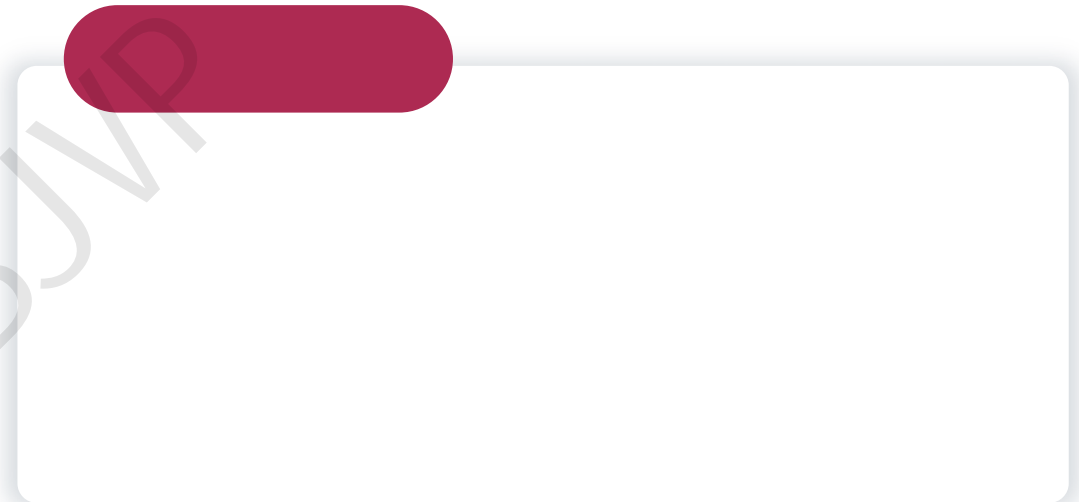
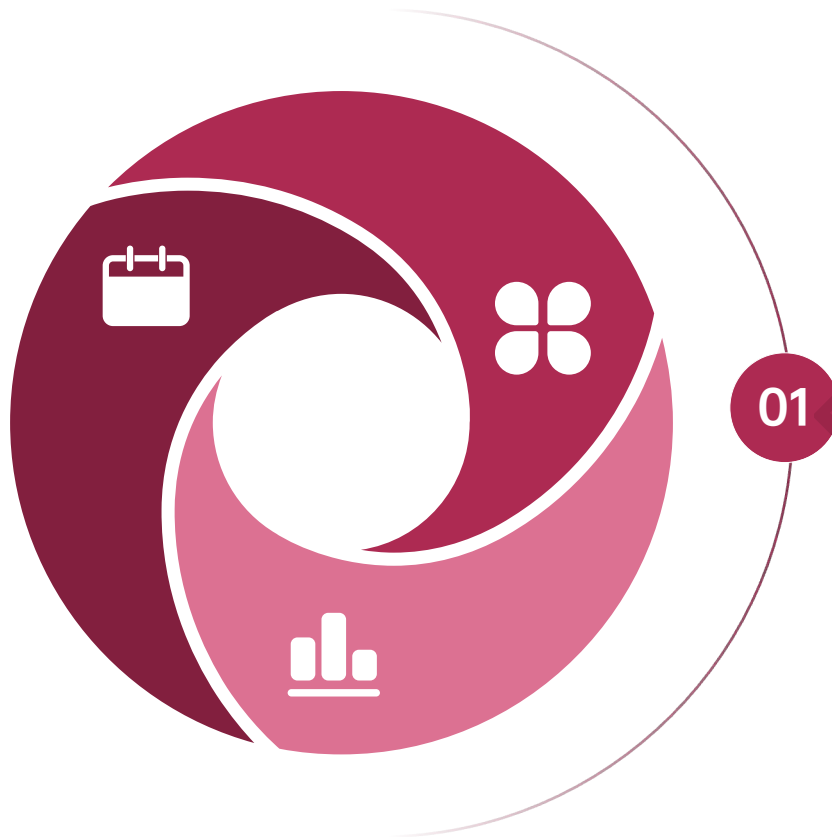


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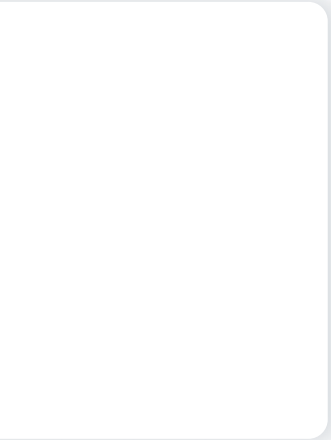


Lubricating grease main equipment

2-rapid cooling mixer

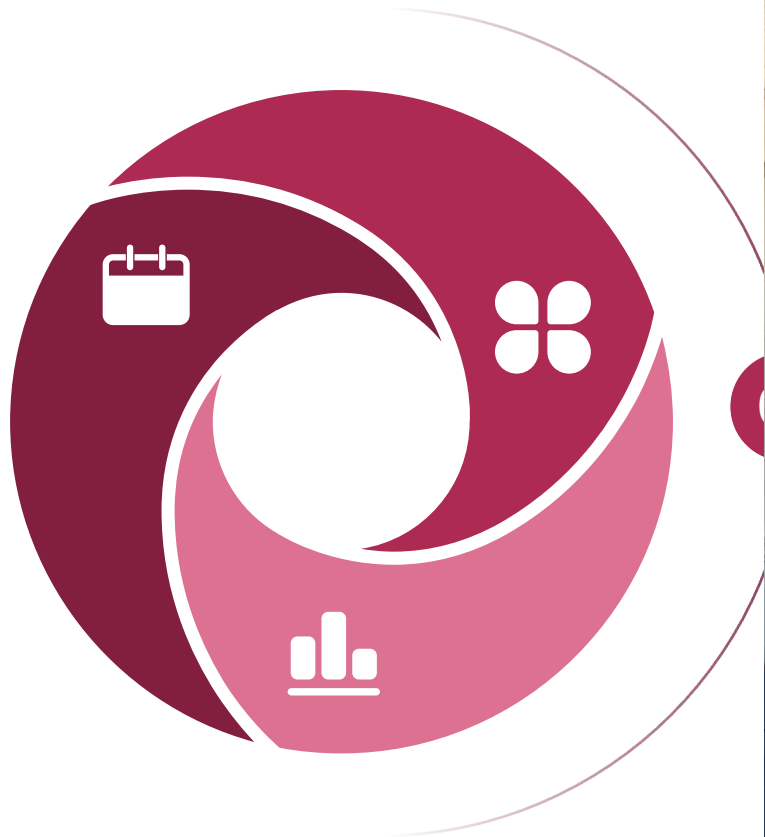


Lubricating grease main equipment 2-homogenizer



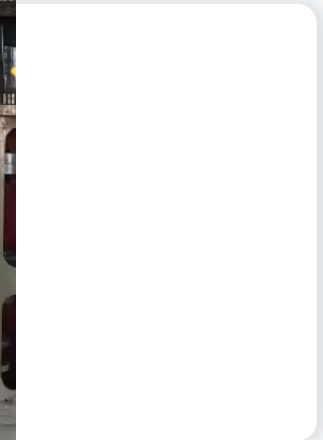


Lubricating grease
main equipment
3- Control cabinet

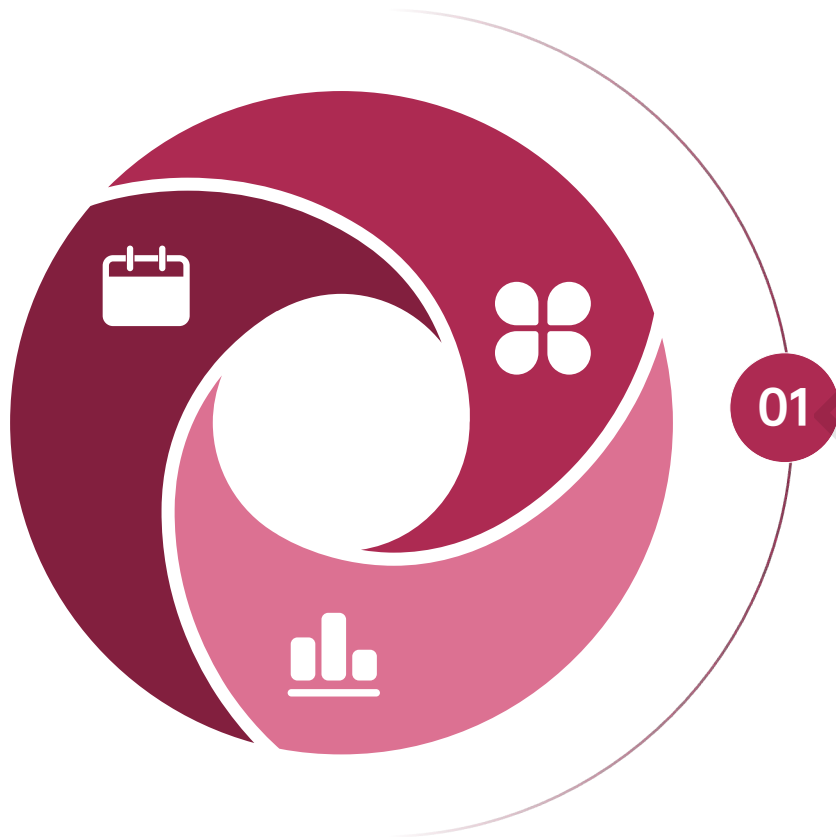




Lubricating grease
main equipment
4-Alkali Dissolving Tank



Lubricating grease main equipment
5-Axis planetary agitator



Lubricating grease main equipment
6-Three-axis planetary blending kettle

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Lubricating grease main equipment
7-Bidirectional mixing and blending kettle

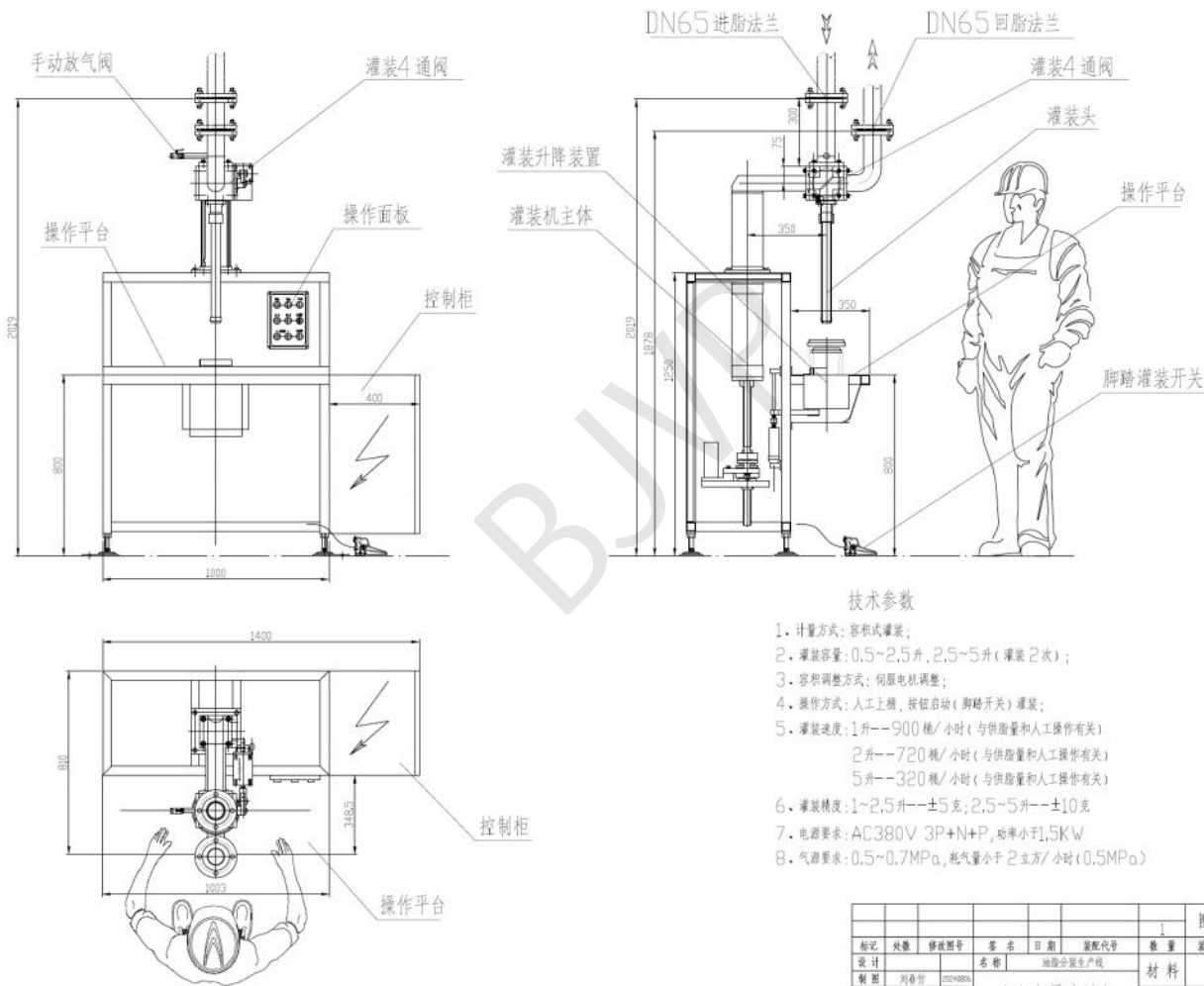
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Lubricating grease main equipment
8- Bidirectional stirring pressure vessel



Lubricating grease main equipment 10- Filling machine

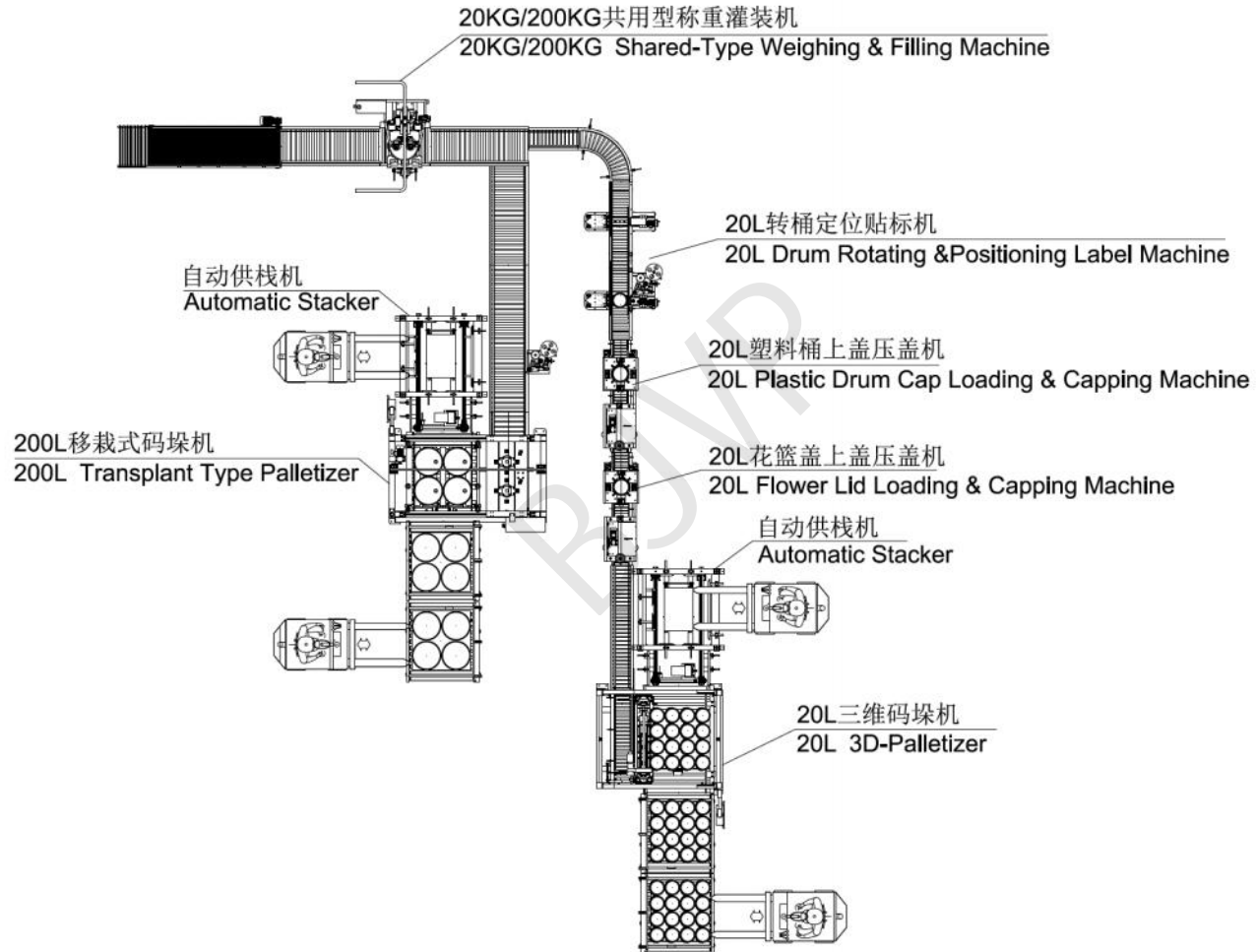


技术参数

1. 计量方式: 容积式灌装;
2. 灌装容量: 0.5~2.5升, 2.5~5升(灌装2次);
3. 容积调整方式: 伺服电机调整;
4. 操作方式: 人工上锁, 按钮启动(脚踏开关)灌装;
5. 灌装速度: 1升--900瓶/小时(与供脂量和人工操作有关)
2升--720瓶/小时(与供脂量和人工操作有关)
5升--320瓶/小时(与供脂量和人工操作有关)
6. 灌装精度: 1~2.5升--±5克; 2.5~5升--±10克
7. 电源要求: AC380V 3P+N+P, 功率小于1.5KW
8. 气源要求: 0.5~0.7MPa, 耗气量小于2立方/小时(0.5MPa)

						图号	
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设计			名称: 油脂分装生产线			材料	序
制图	刘春竹	202140824	油脂定量充填机			比例	共
审核							

Lubricating grease main equipment 10- Filling machine

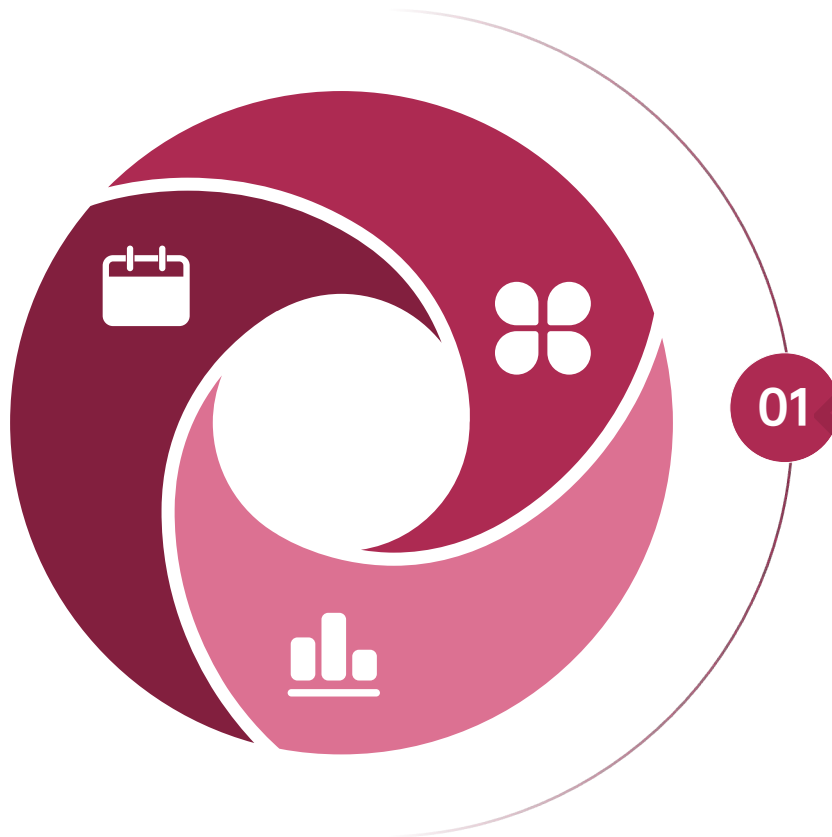


VP High Technology				项目名称 PROJECT
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Lubricating grease main equipment 11- laboratory equipment



Three roll grinding machine

Other experimental equipment

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High viscosity Pigging system

BJVP - Pigging



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High Technology Beijing VP Co., Ltd.



BJVP Pigging in Grease Plant



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BJVP Pigging in Grease Plant

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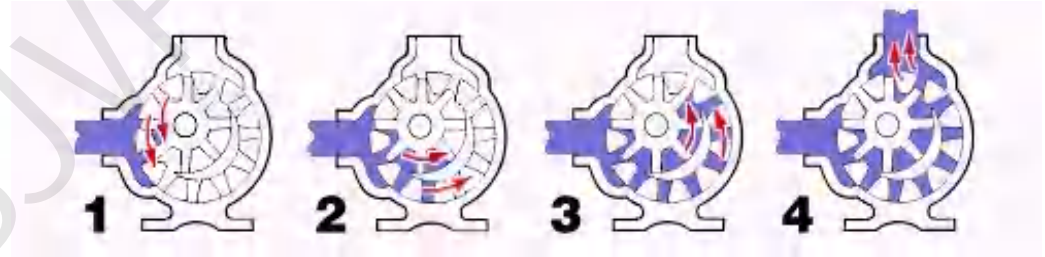
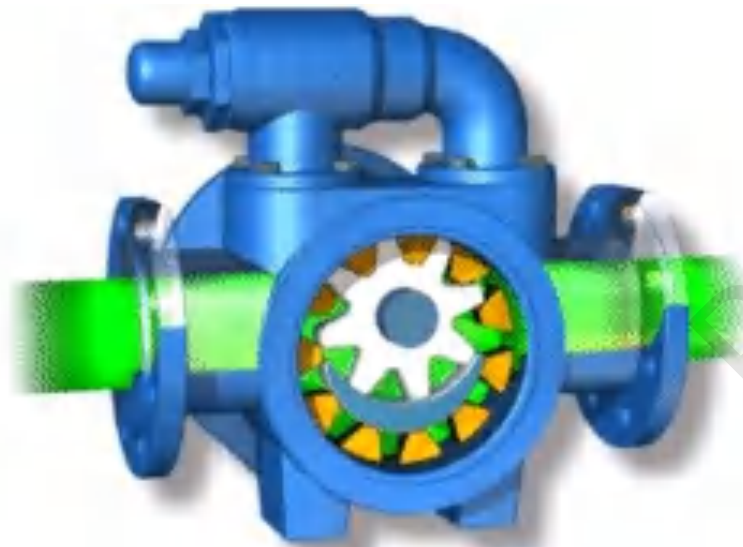


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BUMP

Hi viscosity Gear Pump

BJVP Internal Gear Pump



U Series Pump



流量: $\sim 365 \text{ m}^3/\text{H}$

压力: $\sim 1.6 \text{ MPa}$

温度: $-84 \sim 427 \text{ }^\circ\text{C}$

粘度: $0.1 \sim 440,000 \text{ mm}^2/\text{s}$

Multi Type Models

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Electric Heating Gear Pump

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BJVP Gear Pump

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孙霞

技术总监

Sabrina Sun

Technical Director

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Thank you!

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