

YLX 系列过滤机

YLX Series Filter Press

使 用 说 明 书

Operating Instruction

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Foreword

It is our great honor you become our customer. To make you skillfully operate and use the product as soon as possible, we have prepared the detailed operating instructions and diagrams for fittings attached, the contents of which depend on to product types. Please read and comprehend the data attached carefully before installing and using. It will help you to use your equipment better. Please reserve the data attached for reference later at any time.

To improve the performance and reliability of components, even of the whole equipment, we will make such modification to products and its instructions that the products are not accord with operation instructions in respect of some details. For this situation, we will add some information to make up for these defects. But if it is still not enough, we ask you to understand. Although we hold the attitude of caution and preciseness, and request the information provided in the document are correct and reliable as possible as we can, it is hard to avoid mistake and carelessness. Please forgive and welcome to point out mistakes. However, the company will not be responsible for the losses caused by the mistakes and carelessness possibly occurring in the document. We can't control customers' comprehension for the document. Therefore the company will not be responsible for the accidents and losses caused by installation, operation or using these data. If you find some questions during using the equipments, please contact us in time. Thanks for your cooperation.

Any changes and modifications are not permitted, unless otherwise specified or beforehand approved in written. If you make such changes or modifications, you will be requested to stop operating the equipment.

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I . General

The filter press is a typical pressure filtration equipment in intermittent operation, which is applicable for various suspending solid liquid separation. It is composed by arrangement of filter plate (box type) or is a filter cell composed of filter plate and filter frame (sheet frame type), and its operational principle is to press the suspending liquid (liquid material) into every filter cells under the force of feed pump, then separate the solid and liquid with filter medium (generally use the filter cloth, and can also use the filter paper, filter membrane and etc.). There are also general filter plate and membrane filter plate for the box type. The filter press is widely used in the field of sewage treatment for a great many industries including oil, chemical industry, pharmacy, sugar refining, metallurgy, food, starch, coal washing, dye, and paint etc.

This machine can filter different kinds of crude oil pressed in oil mills. Under the pressurization of oil pump, this machine can separate the impurity through the filtration; it not only takes shorter time, but also reduces the impurity in the oil to the minimum limit after filtration. If part of the filter cloth is damaged and cloudy crude oil is found flowing out from an oil nozzle, simply close an oil nozzle without need of stopping the whole machine for repair. This machine is a oil filtering equipment most generally used in oil mills.

II . Main specifications

Model	Type 65	Type 50
Item		
Productive capacity	20t/d	10t/d
Working pressure	0.5MPa	0.5MPa
Filter area	20m ²	10m ²
Number of filter leaf	29 pieces	20 pieces
Filter leaf size	650 × 650 × 45mm	500 × 500 × 40mm
External dimensions	2820 × 910 × 1050mm	2053 × 792 × 800mm
Weight of machine	3250kg	1200kg

III. Structure and operating instruction

The filter press is mainly composed of principal machine, filtration part and pressure part etc.

1. Main frame

Frame is the foundation of equipment, which is mainly used for supporting filtration structure and connecting other parts. It is composed of thrust plate, pressure plate, pressure frame, main beam and etc. During operation, the feed screw of pressure frame holds down pressure plate and filter plate, filter cloth under the force of pressure, so as to ensure the pressure filtration of liquid material in the cell without liquid leakage.

2. Filtration part

The filtration part is composed of several filter plates as well as the filter cloth, and is arranged on the main beam in certain order.

The materials are fed into each filter cells from feeding hole on the thrust plate, the solid particles are cut off in the filter cells since their grain sizes are bigger than the hole of filter medium, and thus form filter cake, the liquid then is discharged from the liquid hole through filter cloth. There is an outlet hole under the lower part of each filter plate, water nozzles are also equipped, and the liquid is discharged from water nozzles of each filter plate.

The filter medium (i.e. filter cloth and etc.) plays a key role in using the filter press, the performance and pattern selection of filter cloth will directly influence the filtration effect. The filter cloth presently used is made by synthetic fiber through weaving, whose materials can be classified as terylene, vinylon, polypropylene, caprone and etc., and also include the nylon-cotton fabrics, non-woven fabrics, screen, filter paper, and micoporous film etc. Since the material and weaving method of filter cloth are different, their physical and chemical performance including intensity, extensibility, air permeability, thickness, acid and alkali resistant are also different. Users can choose according to the feed pulp's granularity, density, viscosity, alkalinity acidity, chemical composition and technological conditions for filtration, so as to achieve ideal withholding effect and filtration speed. After the filter cloth is used for a period of time, its meshes will be jammed by fine particles of materials, which will influence the filtration efficiency, thus the filter

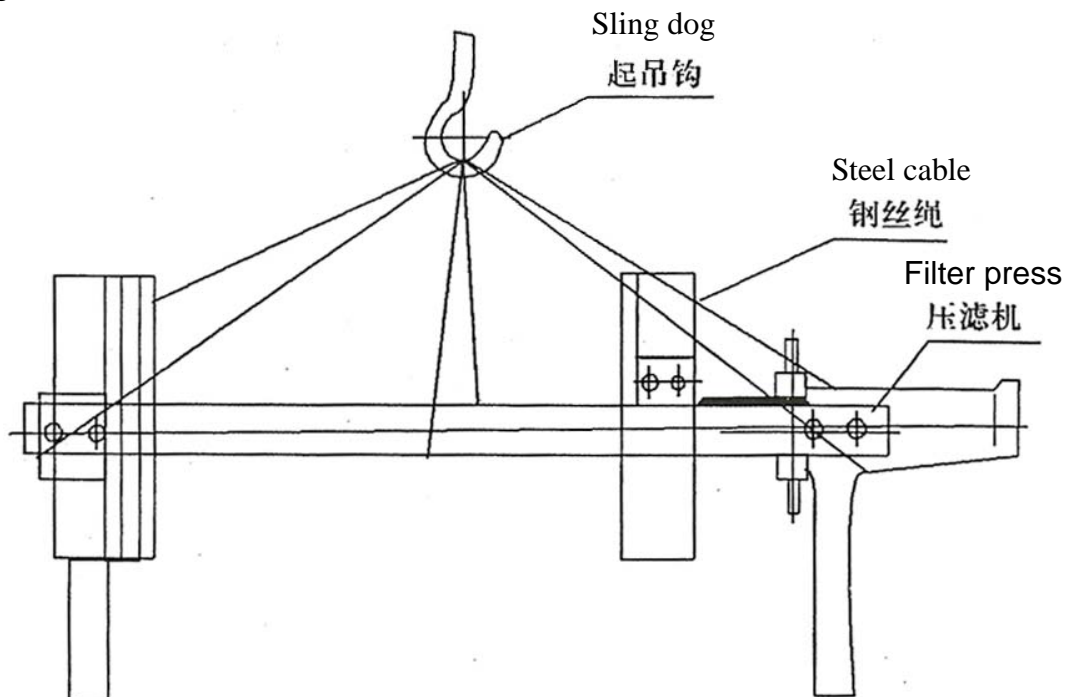
cloth should be washed regularly for recovery or being replaced.

3. Pressure part

Hold down the pressure plate and filter plate, filter cloth, ensure the pressure filtration of liquid material in the cell without liquid leakage.

IV. Installation and examination before test

1. For the assembly and disassembly of filter press, refer to the following figure for hoisting.



Schematic drawing of hoisting

2. The filter press should be horizontally installed on the concrete structure foundation. During installation, the frame should be carried out horizontal and diagonal alignment. For the operation convenience during filter press's discharging, more than 1m space should be preserved around the frame.

3. A pressure meter should be installed at the feed pipe, and temperature gage should be installed for materials with high temperature, moreover adjusting valve and return pipe should be installed at the feed pipe, so as to ensure demand of pressure adjustment. When feeding the liquid material, the feed valve should be rotated slowly to make the pressure gradually rise, thus even stress will be got for the filter cells.

4. Filter cloth should be flatly installed among filter plates, their material will be purchased and fabricated by users based on the demand of production process and principle of no liquid leakage.

5. After the installation, recheck whether the parts are made fast, parts and components are complete, and pipe connection and installation are correct, test running can be carried out if there is no error code.

6. Examination before test

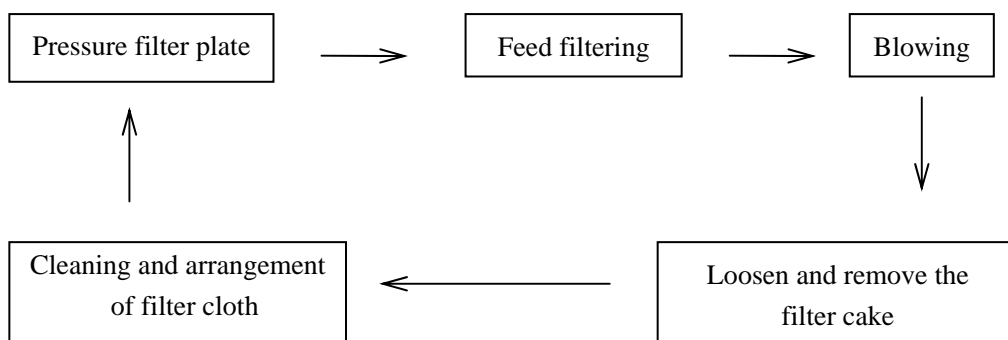
(1) Clean parts of the filter press, check whether the arrangement of filter plate is correct and orderly, and if there is any folding to filter cloth.

(2) Check whether the pipeline valves including feeding, blowing, and liquid discharge are correctly installed, and whether the configuration is complete and reasonable.

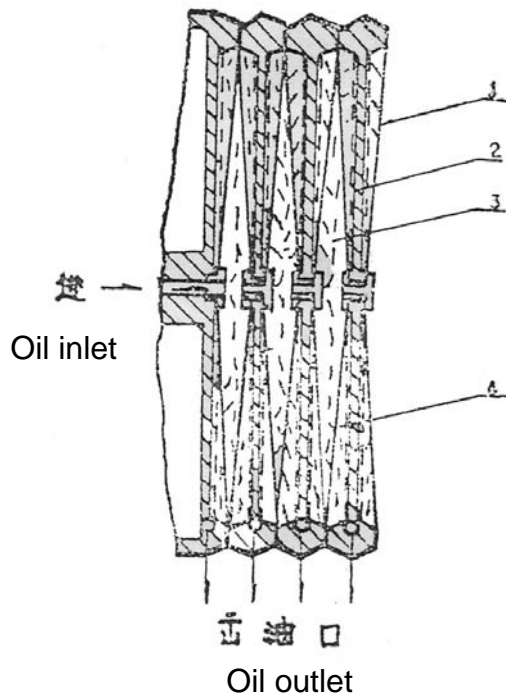
(3) Check whether the joint connection of circuit, oil way and valve meets relevant requirements, and fasteners are made fast, whether the running parts are flexible, hydraulic oil and lubricating oil are filled according to requirement.

V. Filter process

Generally, operation of filter press can be done as follows, and also can be increased or reduced as acquired by the technology.



As shown in the following diagram, crude oil is discharged to the inlet of the filter leaf center through the pump; crude oil penetrates the filter cloth to the space between them due to the pressure and then discharged from the outlet.

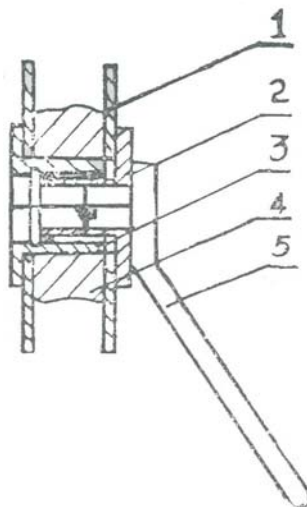


1. Filter cloth
2. Filter leaf
3. Oil space
4. Filter cloth space
5. Oil inlet
6. Oil outlet

Pressure filter process of crude oil

VI. Usage

1. Before filtering the oil, filter cloth shall be installed between filter leaves, the filter cloth shall be of high quality without any damage. The filter cloth shall be placed smoothly to avoid dead fold when installing; wood bar can be set into the left space between filter cloth to lift the filter cloth; level the filter cloth, and then revolve the wrench to press on the filter cloth by hand as follows.



1. Filter cloth
2. Pressure head of filter cloth (male)
3. Pressure head of filter cloth (female)
4. Filter leaf
5. Wrench

Schematic Diagram for Pressing the Filter Cloth

2. Generally, the oil is roily at the beginning of filtering; it shall be collected

respectively for filtering again. When the filter cake has a certain thickness, the oil filtered is clear, and then it can be collected in the clean oil pond.

3. Oil ingress of oil nozzle of each filter leaf shall be checked frequently during filtering, check whether oil discharged is clear or not, when the filter cloth of a filter leaf is broken, the oil discharged from the oil nozzle is roily. At this time, oil nozzle of the filter leaf shall be closed to stop the filter leaf from working, so that the entire operation of the oil expeller cannot be influenced.

4. If oil injection happens during filtering, revolve handling lever between the two filter leaves to press them.

5. Temperature of filtered oil shall be 20—40°C as proper, if the temperature is high, filter speed will be quickened, while when the temperature is low, the quality of oil filtering can be ensured; the water content shall be not more than 4 %.

VII. Repair, maintain and precautions

1. Dregs in the filter cloth shall be cleaned using a grafter before each filtering; the grafter shall be straight to avoid any damage on the filter cloth.

2. Shutdown the machine for cleaning when the dreg in filter cloth is too thick.

3. When shutdown the filter for cleaning, compressed air or steam can be introduced before removal to extrude oil in filter residue. So that surplus oil in filter residue can be reduced , and then loosen the handling lever to pull out the filter plate, sweep away filter residue on the filter cloth, and then put the filter cloth in soda water for cleaning.

4. When cleaning the filter cloth, concentration of the soda water shall be around 10 %, and spray with steam to make the water temperature reach about 100°C, boil for 2~3 hours till it is clean, and then put it in warm water for cleaning.

5. It is necessary to check out whether the filter cloth is broken or not after being cleaned, the filter cloth shall be replaced if there is any damage.

6. Check whether there is any residue between the filter plates when pressing the filter plate; the residue shall be cleared away to avoid collapse of the filter plate if there is any residue.

7. Frequently check out whether the installation of parts and components are safe or not, whether the arrangement of plate frame is correct or not, whether each fastener is tightened or not, whether the driving and operation is flexible and reliable or not.

8. Operators shall carefully inspect the working of the machine after start up each time, the machine shall be shut down for examine and repair if there is any abnormality.

9. Filter pressure, press pressure and temperature of the feed liquid shall not exceed the specified value, the machines shall not be started up when it is lack of the plate frame or the maximum displacement of the press plate exceeds the movement.

10. DO NOT adjust under working condition, DO NOT start up the machine when the pressure gauge is damaged or there is no pressure gauge installed.

11. Check and clean the outlet and inlet passages frequently when using, and keep them smooth.

12. Correctly select the filter cloth to ensure reliable operation.

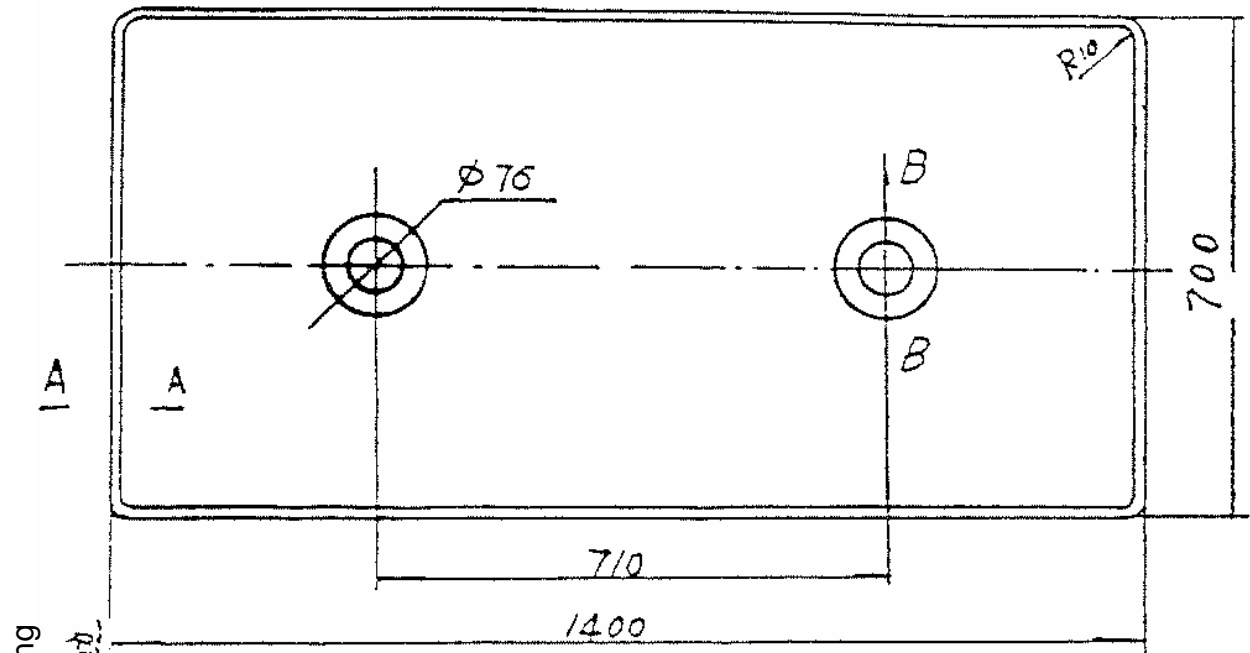
13. The machine shall be stored indoor at dry place with good ventilation when not use for a long time, the exposed surface shall be applied with oil for rust prevention. It shall be stored in shielding places without any corrosive medium, the relative humidity for storage shall be less than 80 % and the temperature shall be $-15^{\circ}\text{C} \sim 50^{\circ}\text{C}$.

14. The filter plate shall be placed horizontally or vertically in transportation and storage, to avoid any bruising and mechanical damage, there shall be no load on the filter plate and filter frame.

15. The filter plate and filter frame shall not contact with oil, acid, alkali or other harmful materials in transportation and storage, and shall be isolated from heat source as well as protected from insulation.

VIII. Main failures and troubleshooting

Failures	Causes	Troubleshooting
Leakage between plate frame is serious	1. Plate frame is distorted	Replace
	2. There are sundries on the sealing surface	Clean
	3. Filter cloth is buckling and overlapped	Arrange to be qualified or replace
	4. Press pressure is not enough	Increase press pressure
Plate frame is broken or distorted	1. Filter pressure is too high	Reduce the pressure
	2. Pressure of feed liquid is too high	Cool down properly
	3. Press pressure is not enough	Adjust the press pressure as qualified
	4. Filter speed is too fast	Reduce filter speed
	5. Feeding hole is clogged	Clean the feeding hole
	6. The machine is shut down when filtering	DO NOT shut down during filtering
The main beam is bend and distorted	The foundation is not secure or smooth	Repair or rebuild



Double lines lock seaming

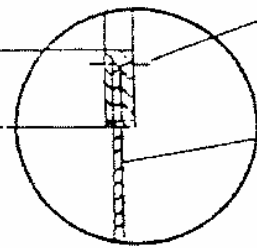
8-10 双线平锁边

Serge twill or white industrial cloth

斜纹布或白花工业布

Canvas

帆布

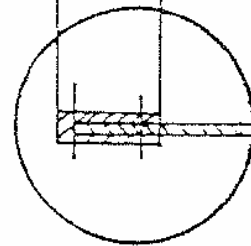


B-B 剖面

Section B-B

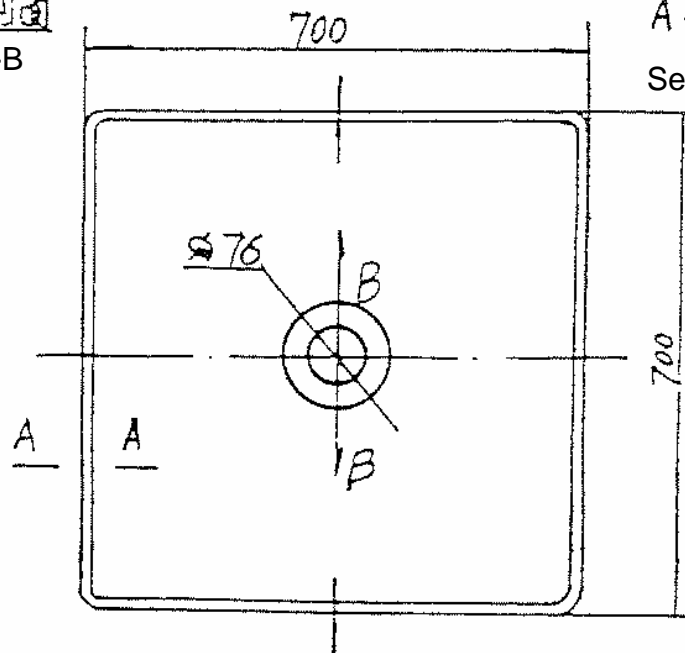
Double lines lock seaming

8-10 双线斜锁边

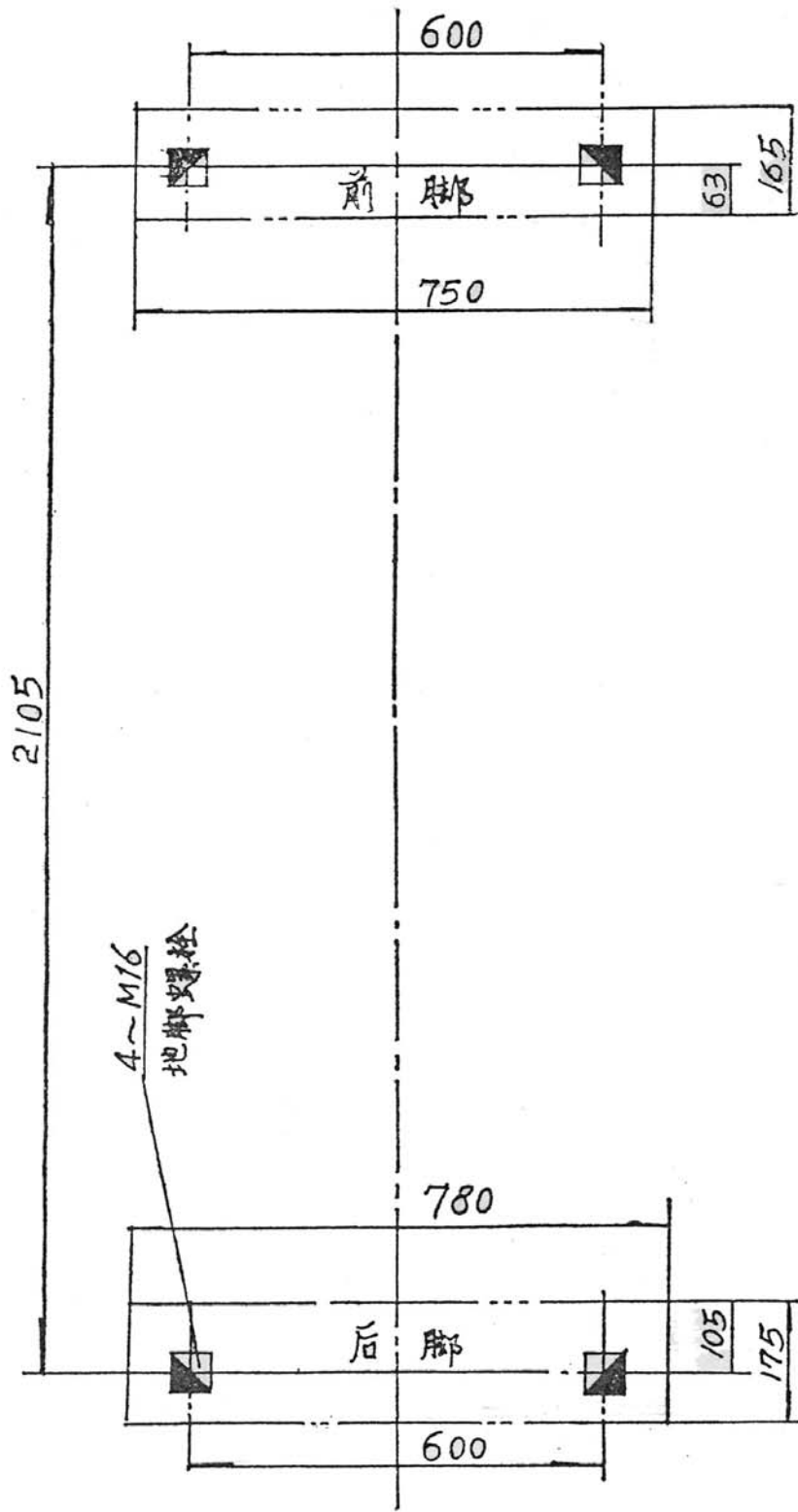


A-A 剖面

Section A-A



Schematic Diagram of Filter Plate (Quantity: 29 pieces)



Foundation plan

