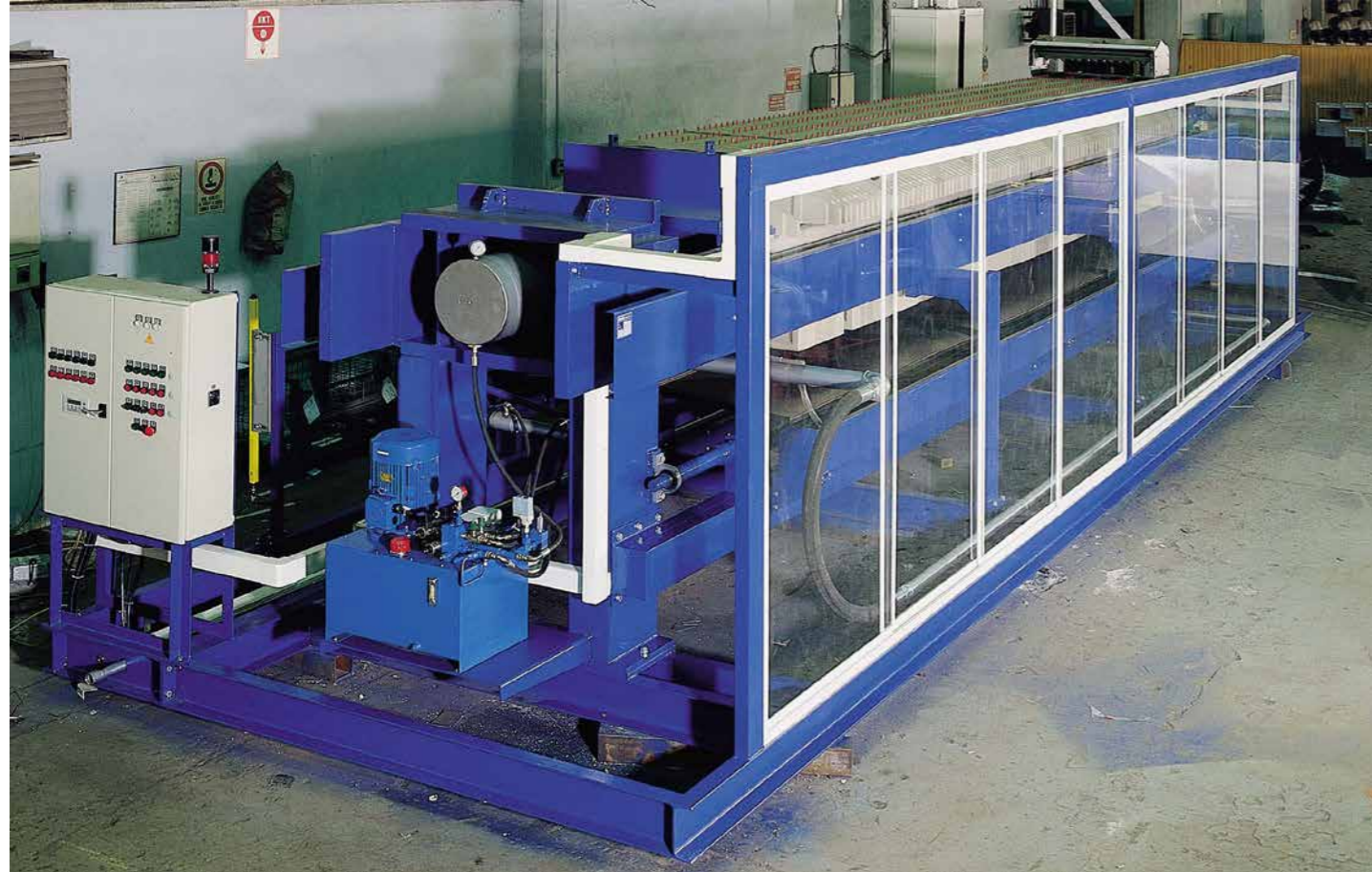




Sismat Uluslararası  
Arıtma Makinaları  
İnşaat Mühendislik  
Sanayi ve Tic. A.Ş.



**FILTER PRESSES**



## FILTER PRESSES

A filter press is a type of mechanical equipment which achieves solid-liquid separation of slurry using pressure filtration with the help of filter plates and clothes. Filter presses are the parts of batch operations and commonly used for sludge dewatering in municipal and industrial wastewater treatment plants due to their economical and easy-to-operate design.

Filter presses are generally consist of metal components, plates and filter clothes. The main purpose of metal components is to protect the filtration unit from pressure applied during operation. Filtration unit is the part of equipment which separate solid and liquid in filter presses. This unit is composed of the plates having the same sizes. Filter clothes are worn on each plate to obtain a filtration unit. The function of filter clothes is to allow the water present in slurry to pass through the pores of the clothes and collect sludge cake on the cloth. Dewatering ratio of filter press is more than decanter's and belt press' which are the equipment used for the same purpose.

Main working logic is based on that the slurry to be dewatered passes through the plates inside the filter press and the volume of it is reduced by filtering the water. The water filtered passes through the filter clothes and leaves the sludge cake behind. Thereafter, the sludge cake is discharged from the system. Sludge cake discharge system can be designed as automatic or manual according to the customers' requirements.

**Sismat Uluslararası offers three types of filter presses:**

**Chamber type filter presses (FPC)** are the most common type of filter presses due to the reliable and flexible design. They have a series of filter plates with a cavity on the plates placed collaterally to obtain an empty chamber.

**Mixed type filter presses (FPX)** are designed by combining chamber and membrane types of filter presses to obtain the cake thickness desired. It is the oldest design and preferred rarely.

Sismat Uluslararası Filter Presses are mainly made up of filter plates, filter clothes, filtrate tray, drip tray, cloth washing system and drive unit.

## FEATURES AND BENEFITS OF SISMAT ULUSLARARASI FILTER PRESSES

- Commonly used equipment due to robust and durable construction
- Reliable and trouble-free operation
- Efficient and economical solution for sludge dewatering
- Fine filtration provided under high pressure
- High solid matter content in sludge cake
- Sustainable operation ability
- Automatic washing system for filter clothes
- Low operation and maintenance cost
- Low energy consumed

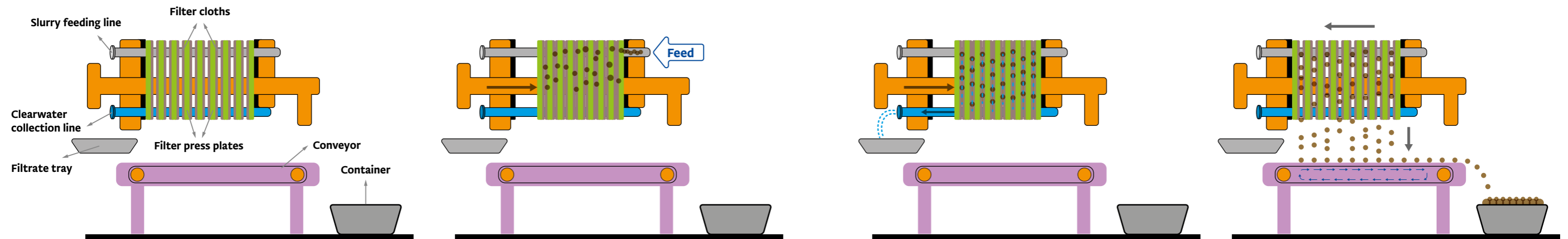
## APPLICATIONS

- Municipal wastewater treatment plants
- Industrial wastewater treatment plants
  - Glass industry,
  - Coal and mining industry,
  - Pharmaceutical and cosmetic industry,
  - Pulp and paper industry,
- Food and beverage industry,
- Chemical industry,
- Agricultural industry,
- Metal working and surface finishing industry, etc.
- Plastics recycling plants

## WORKING PRINCIPLE

Sismat Uluslararası Filter Presses are used for sludge dewatering and obtaining a sludge cake in low volume to transport easily.

In this system, slurry to be dewatered is fed into the system by the sludge pumps. As each chamber fills with slurry, it is filtrated by the clothes worn on the filter press plates. The feeding process takes place synchronously. At the beginning of filtration cycle, some fine particles may pass through the pores, and then larger particles form a layer reducing effective openings on the clothes, it is called as "sludge cake" and it helps to be captured the finer particles by the sludge cake. The water filtered passes through the equipment. The filter press plates get opened and the sludge cake accumulated between the plates is discharged from the system. Dewatering in higher ratio can be obtained with dosing of cationic polyelectrolyte solution by dosing pumps.



**1**  
Slurry is fed into the system through the sludge feeding line.

**2**  
The slurry is filtrated by the clothes worn on the filter press plates when they are closed.

**3**  
Excess amount of water is collected in a filtrate tray.

**4**  
Finally, the filter press plates are opened and the sludge cake is discharged from the system.

## OUR FILTER PRESS SPECIFICATIONS

Specifications	
Working pressure	4-8-16 bar
Plate width	400-500-630-800-1000-1200-1500-2000 mm
Plate height	400-500-630-800-1000-1200-1500-2000 mm
Sludge cake thickness	25-32-40-50 mm

### Sismat Uluslararası Filter Presses mainly consist of following parts;

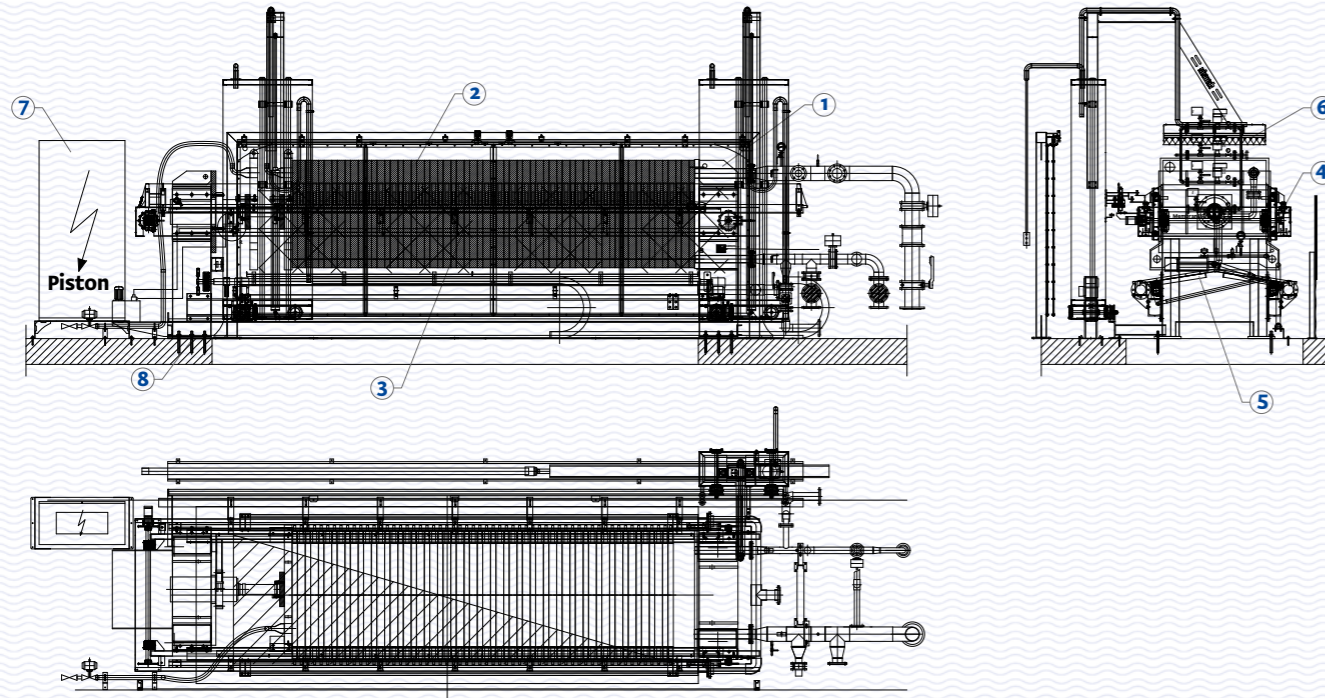
**Frame:** Filtration forces caused by pressure increase between filter plates and reaction of hydraulic unit to balance these forces are met by robust frame construction. In general, frame is made of welded steel construction. Side bars on which filter plates slide in two directions are manufactured from stainless steel. Parts in contact with water are coated with epoxy paint.

**Filter plates:** In standard applications, filter plates are centrally fed and side discharge type with polypropylene material. Plates with different material and cake thicknesses are available on request.

**Filter clothes:** They are worn on filter plates and used for filtering of slurry. Filter cloth selection depends on sludge to be filtered.

**Discharge and cleaning mechanism:** Filter presses can be equipped with additional units to dewater different sludge types and to fulfill various filtration requirements. In filter presses which have more than 15 plates and 500x500 mm or bigger plate sizes, plate opening and shifting can be automatically operated by a shifting device. Operation is started with a button push and continuous automatically. According to the sludge type, filter presses which have less than 15 plates can be equipped with plate vibrating system for cleaning.

## Typical Filter Press & Components



Typical drawings are for information only.



## OUR FILTER PRESS COMPONENTS

	Filter Press Components	Materials Available
1	Frame	Carbon steel or stainless steel grade, AISI304, AISI304L, AISI316, AISI316L, AISI316Ti
2	Filter plates	Polypropylene
3	Filter cloth	Polyethylene, polypropylene, polyamide, polyester
4	Filtrate tray	Carbon steel or stainless steel grade, AISI304, AISI304L, AISI316, AISI316L, AISI316Ti
5	Drip tray	Carbon steel or stainless steel grade, AISI304, AISI304L, AISI316, AISI316L, AISI316Ti
6	Cloth washing system	Carbon steel or stainless steel grade, AISI304, AISI304L, AISI316, AISI316L, AISI316Ti
7	Drive unit	-according to norm of manufacturer
8	Fasteners	8.8, A2, A4



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Sisnat Uluslararası Arıtma Makinaları  
İnşaat Mühendislik San. ve Tic. A. Ş.  
Address: Gebze Güzeller Organize Sanayi Bölgesi (GGOSB)  
Fatih Sultan Mehmet Cd. 5/1 Gebze/Kocaeli/Türkiye  
Telephone : +90 262 751 12 54  
Fax: +90 262 751 12 56