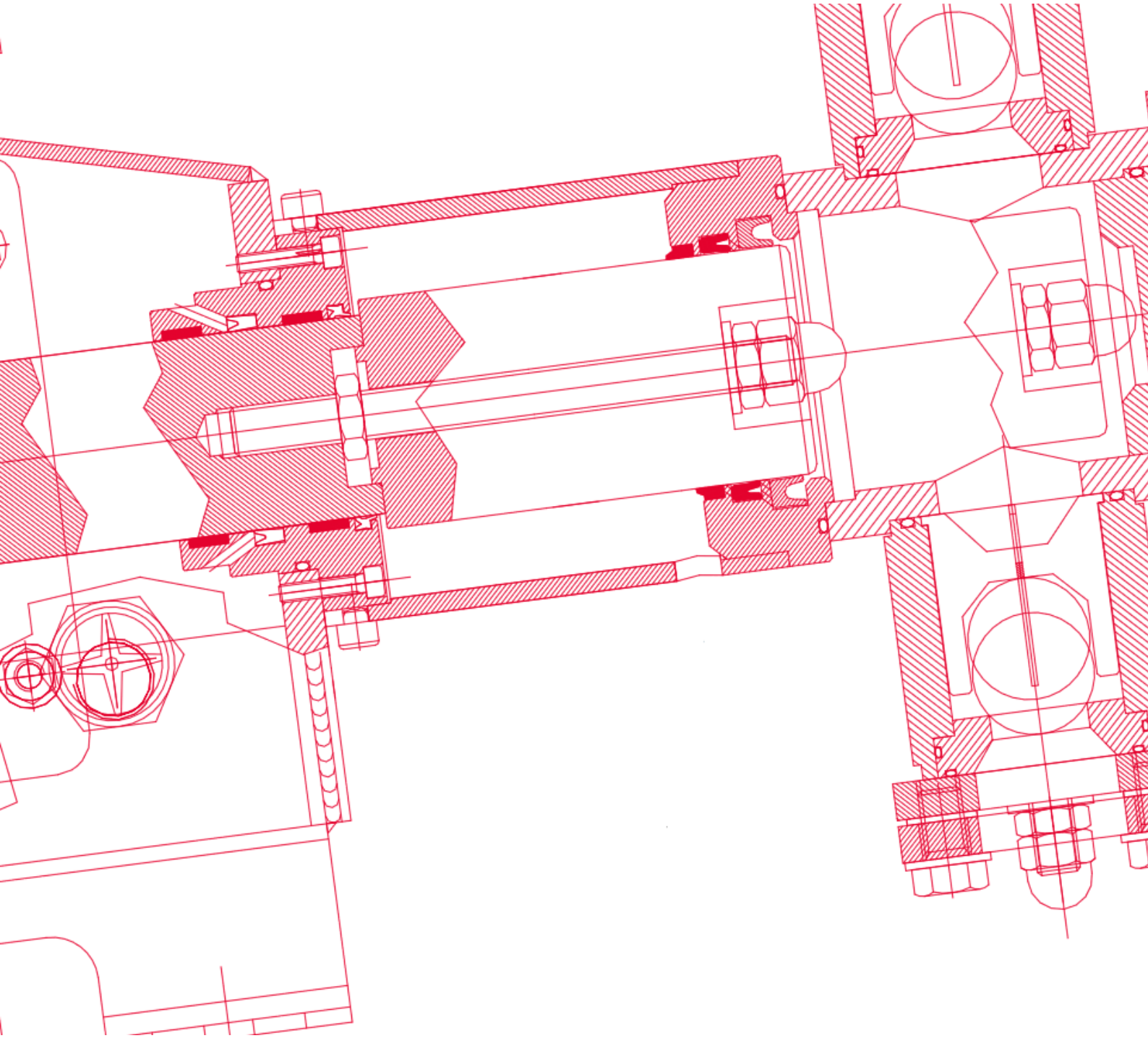
AUTEMI

Plate Filterpresses for Process and Chemical Industry



SPECIFIC SOLUTIONS FOR INDUSTRY

Autemi is able to supply specific solutions for Process and Chemical Industry.

Our Filterpresses portfolio is specific designed for heavy duty applications typical of industry environmental.

Optional and configurations available allow our machine to be the ideal solution for all that processes where a standard filterpress can't reach the required results.

Autemi offer the possibility of customization about materials, special covering of the frame, piping layout, valves optional, and many other solutions.

We do not tell you that in each project we use the most innovative technologies on the market and the most modern CAD / CAM / CAE software, because we take this for guaranteed.

Are you a plant engineer, a contractor and are you looking for a partner to buy not only a machine but a real technical service that is able to provide you valuable advice obtained from experience in the field?

Do you always have the problem that to install a device you have to analyze many technical specifications, provide many – far too many documents, tests, logics of operation, etc. ….?

Ok, then we are the right choice.

Are you an end user and are you looking for a strong, tough, high quality machine and maybe with that particular technical feature that the other manufacturers don't give you because everything is standard and everything is immutable?
Ok, then we are the right choice again.
What we do is not unique, but the way we do it is unique.

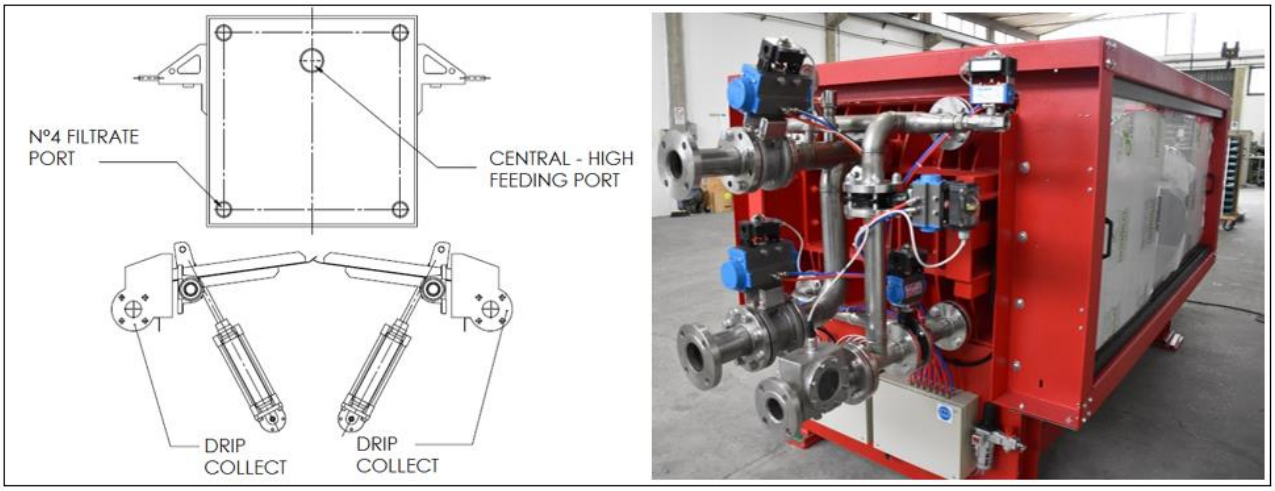
OPTIONALS AND CONFIGURATIONS AVAILABLE

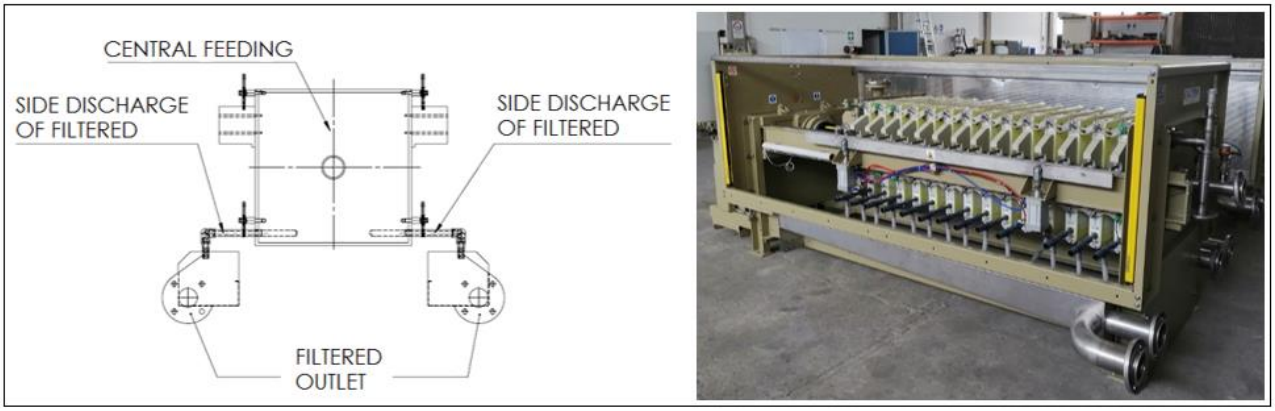
Our filterpresses are suitable for customization and selection of the best solution suitable for the specific application.

Here showed the most important devices to consider during configuration of the machine, both in terms of layout and in terms of functionality.

FILTRATE DISCHARGE

We can choose between opening discharge in lateral tray or in common canal.





One of the characteristics that distinguish a high-performance filter press - with the same options - is certainly the filter discharge system. The discharge of the filtrate is the way in which the filtered liquid is conveyed and collected. The first system - even the most economical one - consists of a lateral lower drain, also called an "open drain".

With this type of discharge, the filtrate comes out from the lower part of the plate (on both sides or on one side, depending on the model dimension) and through a curve it is conveyed into an open tray.In some cases, before the curve, an exclusion tap (one for each plate) is used in order to intercept plate's discharge in case of breakage.

With this solution it is possible to immediately identify which cloths is damaged, but it's not possible to make the most of the potential of the filterpress. It is possible to increase the filtration efficiency with the discharge in closed collector and flooding valve (also called drain valve).

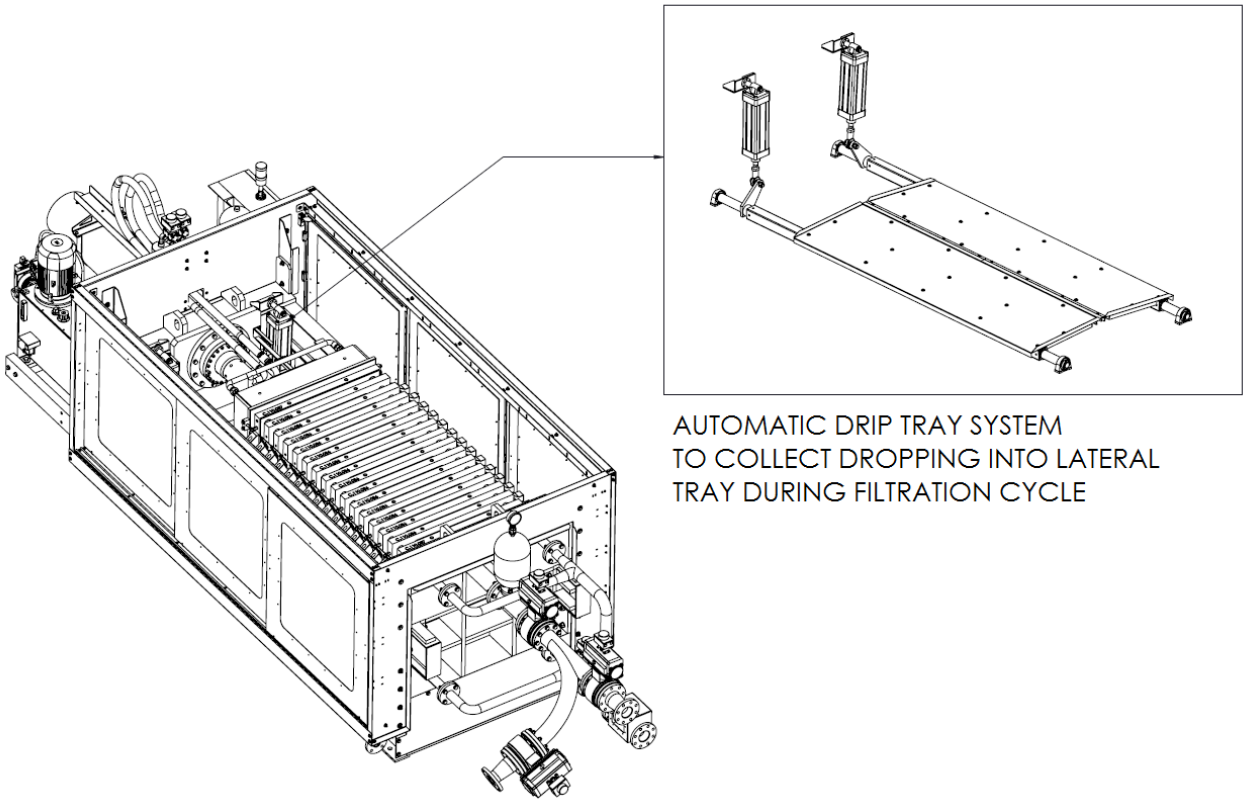
When there is no explicit need to use the lateral discharge (for example in heavy materials filtration) it would be better to avoid it: during the first stages of filtration, the filtrate comes out from the bottom before completely filling the chamber.

The solution with flooding valve is different. This option provides that the filtrate is discharged inside a common closed collector: the n.4 filtrate discharge holes (or n.2 in the smaller machines) are combined into a single collector.

A valve is placed in lower pipe. The opening of this valve (controlled by a PLC) occurs when the filtration (filling) pressure reaches 3/4 bar (before 3/4 bar, the filtrate comes out only from the 2 upper holes, in order to completely fill the plate chambers).

In addition to this, a better distribution of the pressures inside the plates is obtained.

DRIP TRAY



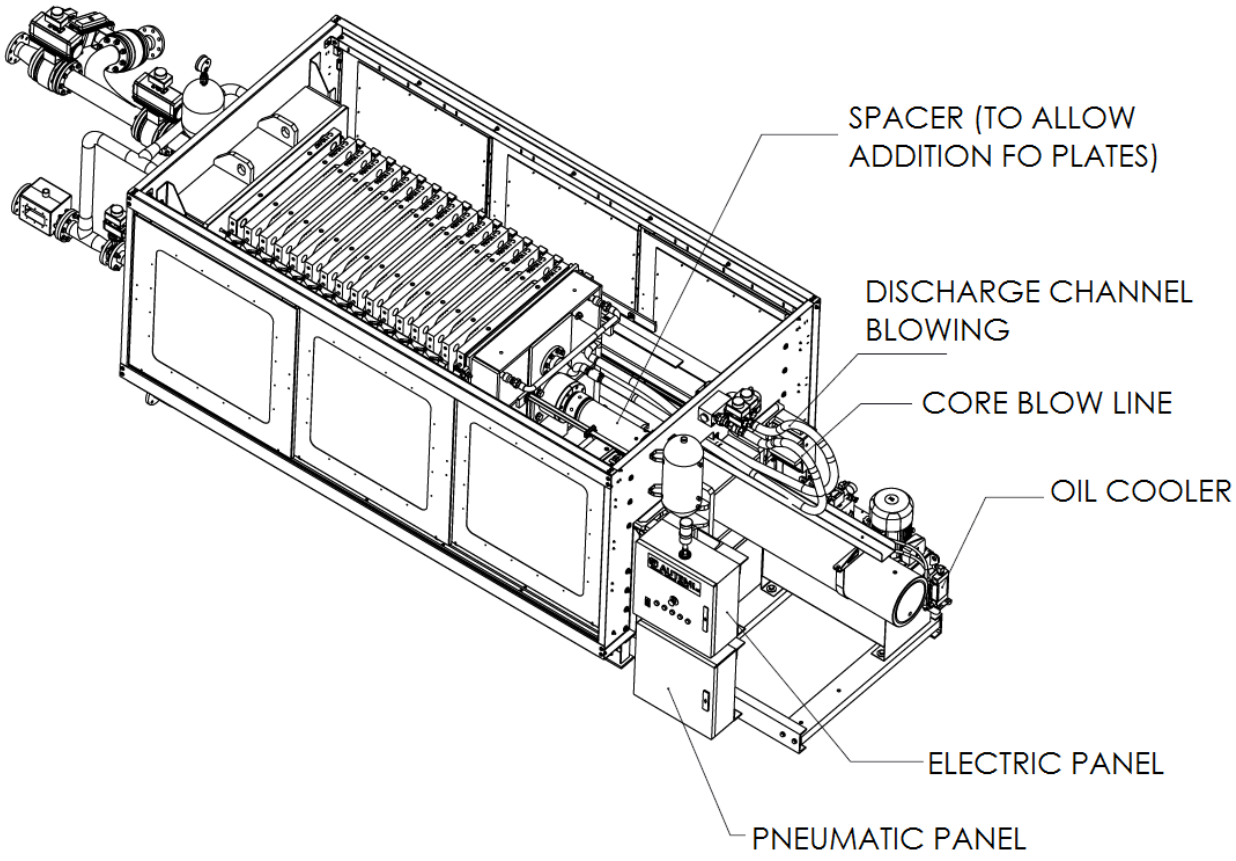
AUTOMATIC DRIP TRAY SYSTEM
TO COLLECT DROPPING INTO LATERAL
TRAY DURING FILTRATION CYCLE

Its function is to convey the liquid that normally and physiologically draws during the filtration phase between one plate and the adjacent one (unless the "gasket" plates are used - but this is another matter).
This liquid is collected in one or two lateral trays from which the user of the filter press then connects to convey it usually to the head of the system.
Constructively it consists of one or two (depending on the size of the machine) tilting doors moved by linear actuators that allow the device to remain closed during the filtration phase and to open during the panel unloading phase.

The Drip Tray is the device that is regularly offered as an option but should never be missing from a high-performance filter press.
The reason is very simple: we try to avoid the efficiency loss of the filter press.
Without Drip-Tray, all the dripping fluid during the filtration phase, falls into the cake recovery box.

So basically with the filter press I try, with all possible strategies, to obtain the greatest degree of dryness and the greatest dehydration and then, since I have not mounted the Drip Tray, I am going to nullify the action obtained in the previous filtration.

CORE BLOW AND CHANNEL BLOWING



The core-blow is an automatic device used for cleaning the feeding pipe and the feeding channel which is formed by pairing the filter plates.
The process involves sending compressed air, usually between 6 and 8 bar, inside the filter press feeding channel, capable of removing any sedimented sludge.
In "short" machines, where the sludge is fed only from the fixed head, the compressed air flow from the mobile head.

The mobile head plate is characterized by the same hole present in the machines with double feeding; in this way, the compressed air flows through the entire manifold of the plates and in the feeding pipe.

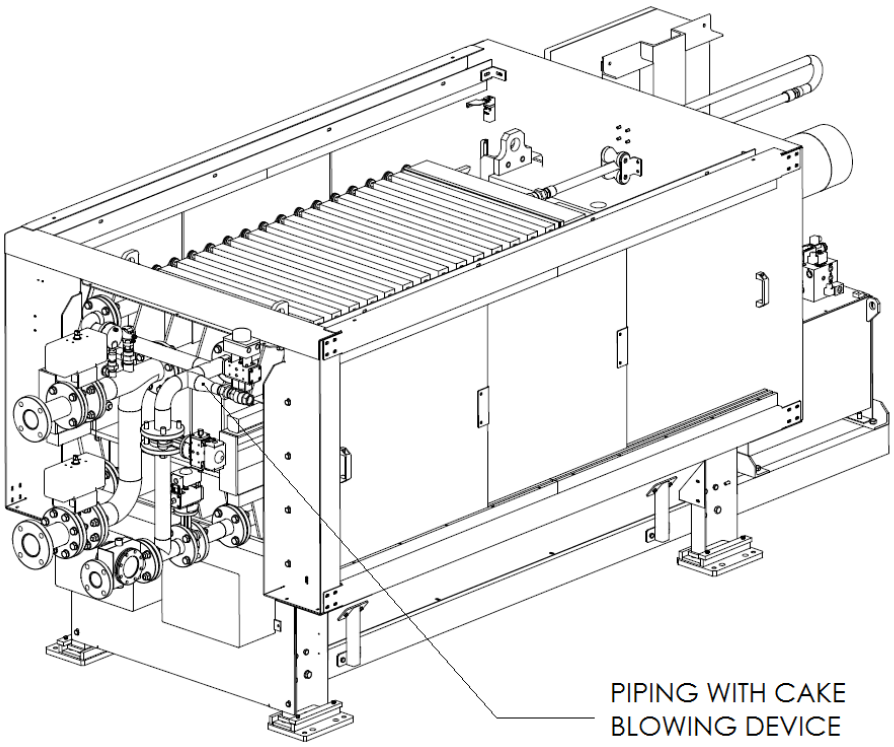
Why is this device so important?

In automatic cycle machines, this device is essential to ensure correct operation: in case of simultaneous or automatic machines, the filtering and cake discharge step is not always attended by an operator.
If the sludge present in the feeding channel of the filtering plates should settle and "dry out", during the following filtration cycle there would be pressure imbalances that could cause the plates breaking.


This is particularly true for high specific weight sludge such as lead pastel or for very dense sludge such as molasses, sugar, concrete, etc ...
The filtration pressure increasing will therefore not be homogeneous on both sides of the plate causing the breakage.

This optional is simply composed of an automatic valve (usually ball type) for the compressed air inlet, a flexible pipe capable to following the movement of the mobile head during the opening and closing step of the filtering plates pack and a check valve,
positioned behind the feeding hole in the mobile head plate.


CAKE BLOWING AND CAKE WASHING



Device mainly used when there are problems with cake detaching from the filtering cloths during the unloading step of the machine.
In addition to this important function, it also allows the achievement of a few more percentage points of dry solid in the cake.

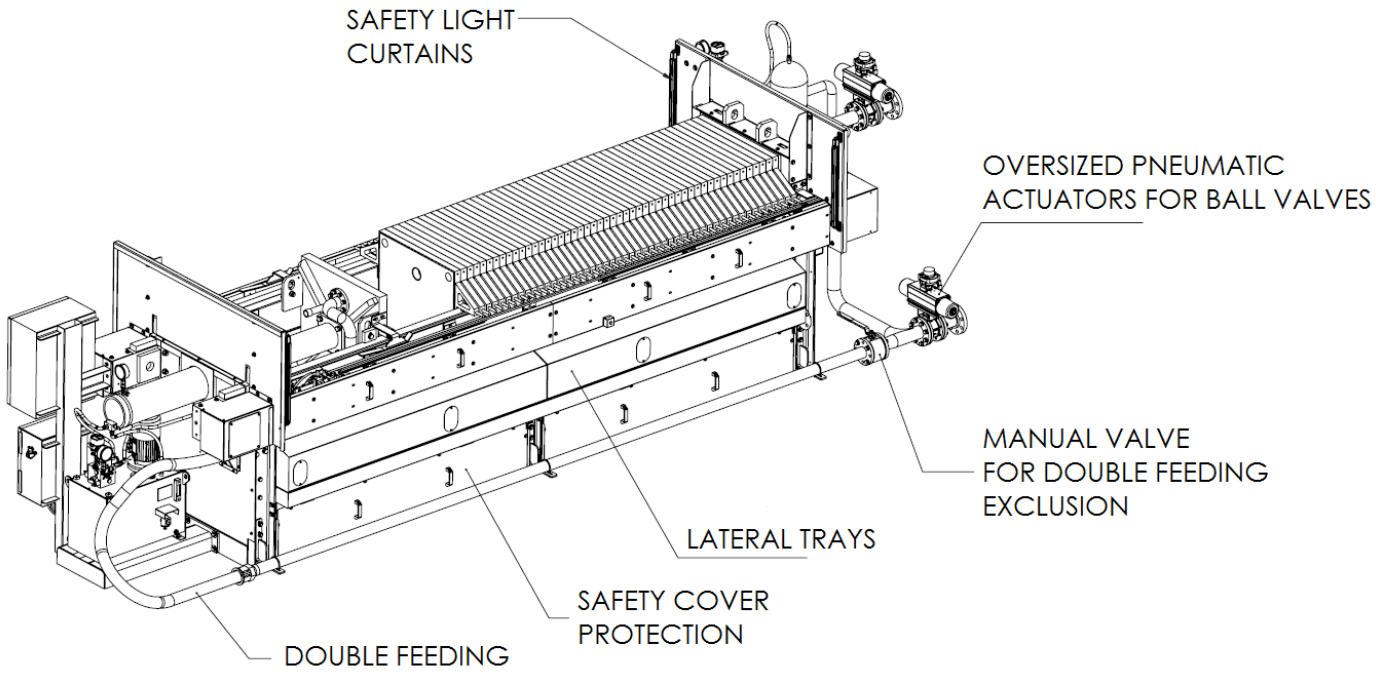
Cake blowing (or cake drying) is an optional which involves the insertion of compressed air (at 6/8 bar) inside the panels, after the filtration phase.
This optional is developed on the machine's discharge pipes. Basically a series of automatic valves are installed: compressed air inlet valve and an automatic shut-off valve (this valve/valves) allows to divide the compressed air inlet circuit from the outlet circuit.

Drying can be carried out mainly in two ways: inserting the compressed air in the upper exhaust manifolds and then letting it out from the low ones, or inserting the air in the right (or left) discharge holes and letting it come out from the left (or right) manifolds.
We speak of "top-down" drying in the first case or "right-to-left" drying in the second case.

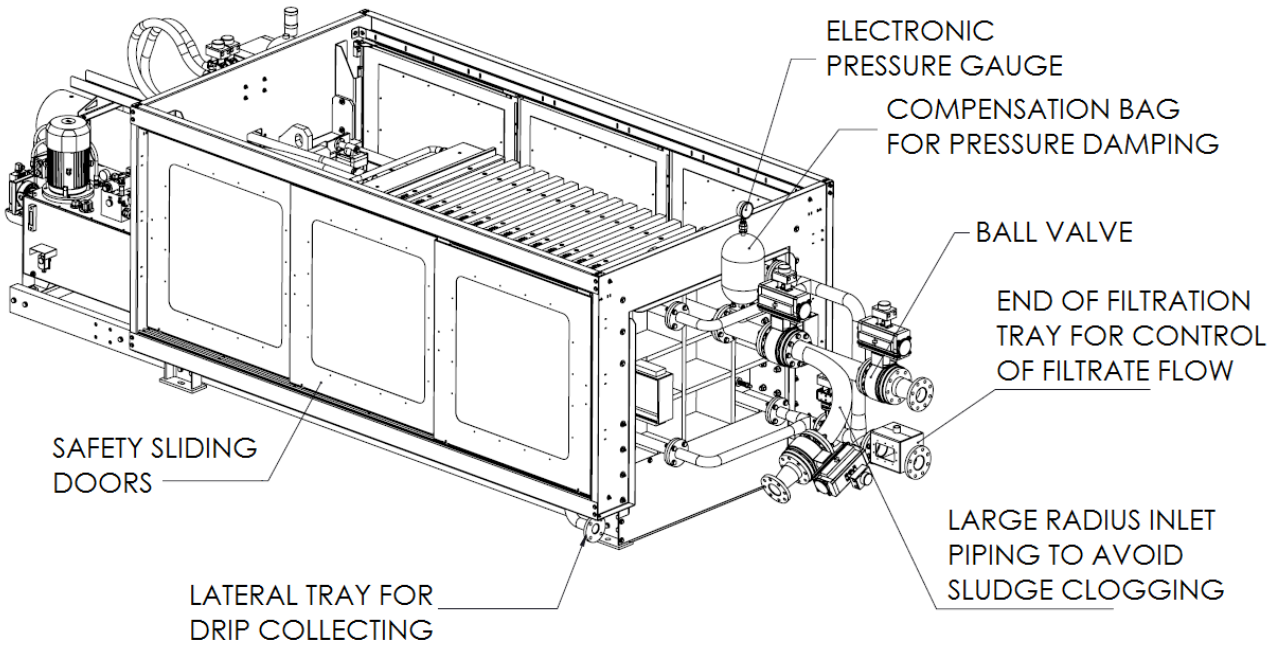
If you decide to install this device, the filter plates are characterized by the presence of crossed drainage holes.
This means that compressed air entering, for example, from the high collectors of the filter press, is forced to exit from the low collectors.

CAKE WASHING DEVICE
The washing of the cake allows to:
- Remove contaminants from the sludge
- Recover substances from the sludge
The device is composed like cake blowing but the fluid used is liquid (water, acids, etc ... depending on the process).

DOUBLE FEEDING, VALVES AND SAFETY DEVICES

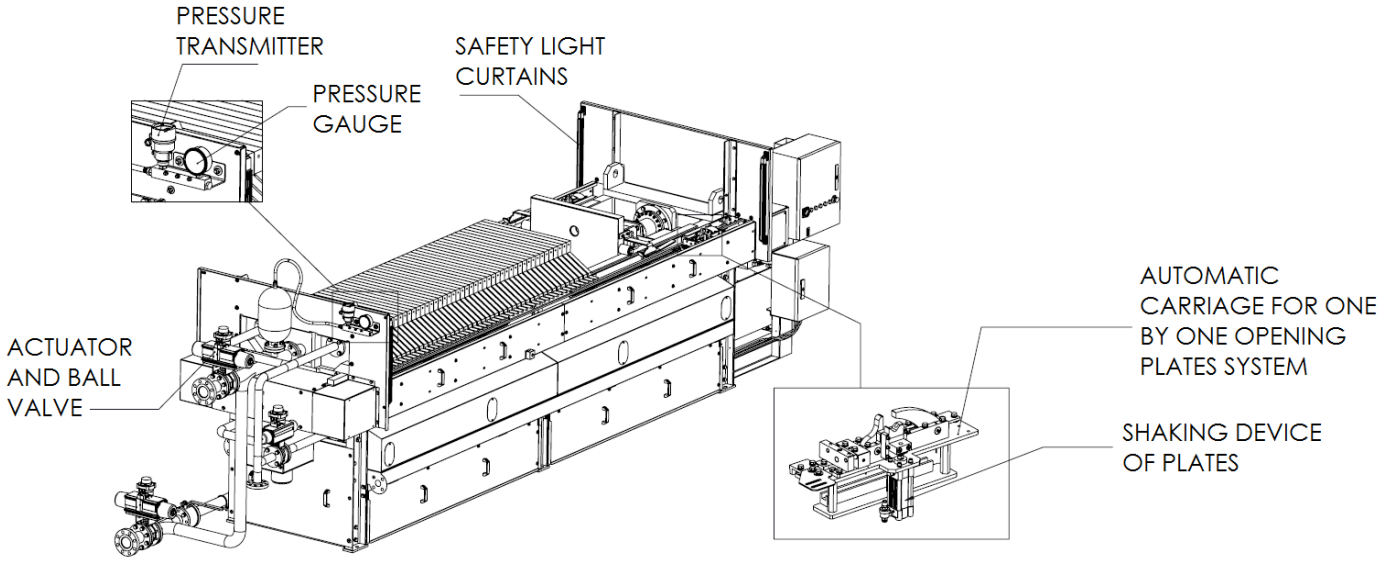


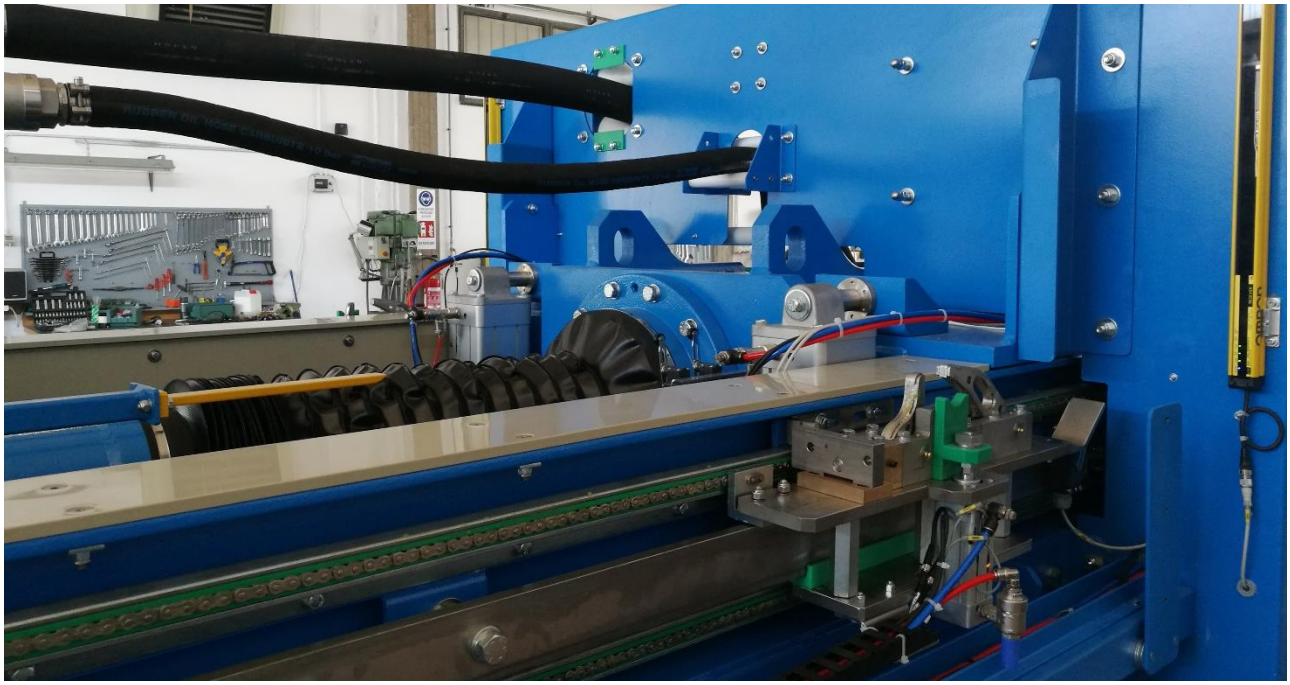
Double feeding is a device that is always strongly recommended to be installed in filter presses with more than n.40 filtering plates (or even less, depending by the sludge to be treated).
Sludge feeding inside the machine takes place from both ends (both from fixed head and mobile head).
This solution is used to ensure that the sludge is fed in plate's volume uniformly.
The reason is to avoid the formation of non-homogeneous filling areas (with different pressure distributions) and risk of breakage.

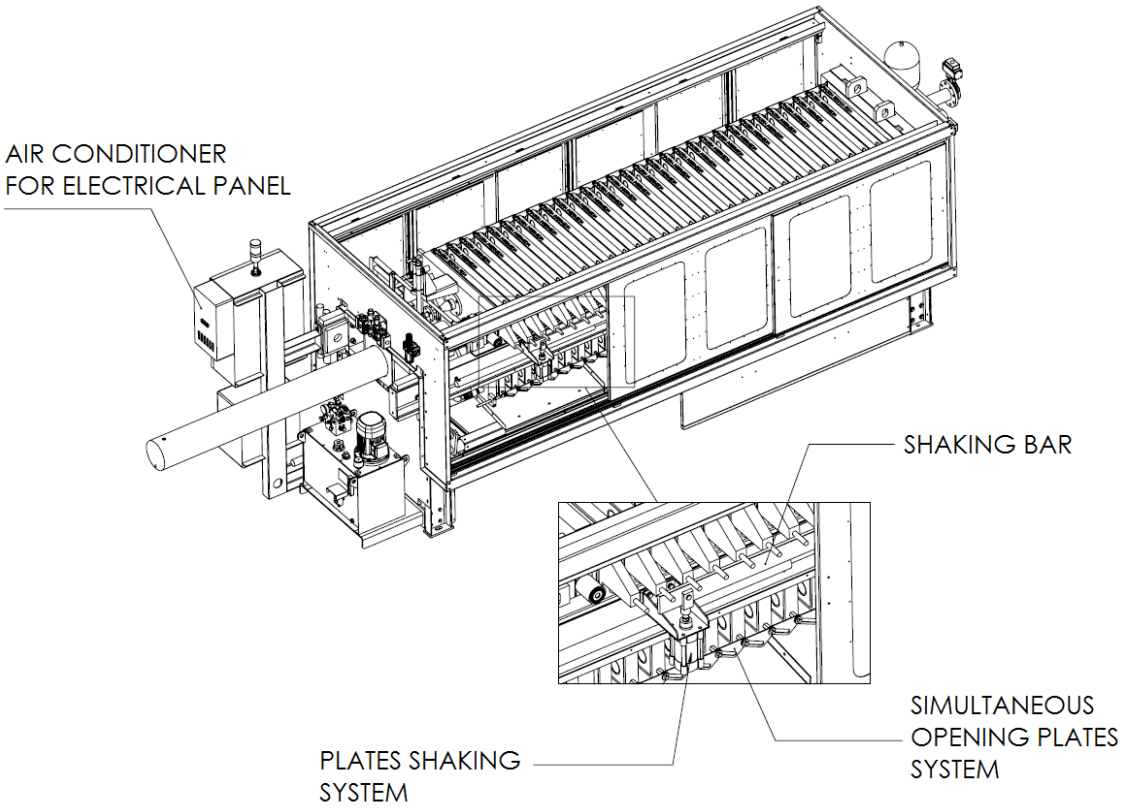

ELECTRONIC
PRESSURE GAUGE
COMPENSATION BAG
FOR PRESSURE DAMPING
BALL VALVE
END OF FILTRATION
TRAY FOR CONTROL
OF FILTRATE FLOW
SAFETY SLIDING
DOORS
LARGE RADIUS INLET
PIPING TO AVOID
SLUDGE CLOGGING
LATERAL TRAY FOR
DRIP COLLECTING

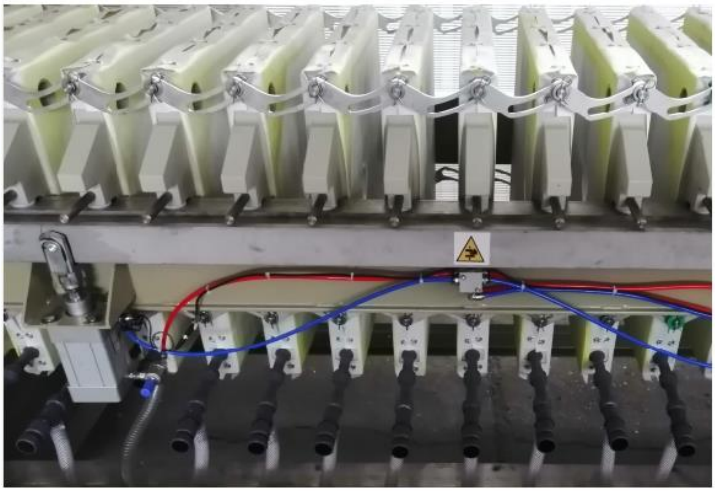
OPENING SYSTEM

Our Filterpresses are equipped with several plate opening system, depending on the sludge or liquid to be treated.
Basically we can supply Automatic opening system “One by one”, with moving carriage and plate shifting or Automatic and “Simultaneous” with synchronized opening system in order to open all the plates simultaneously.
Autemi srl can supply also Plate Filterpresses with automatic and simultaneous opening system with multiple unit, in case of a lot of filtering plate installed.





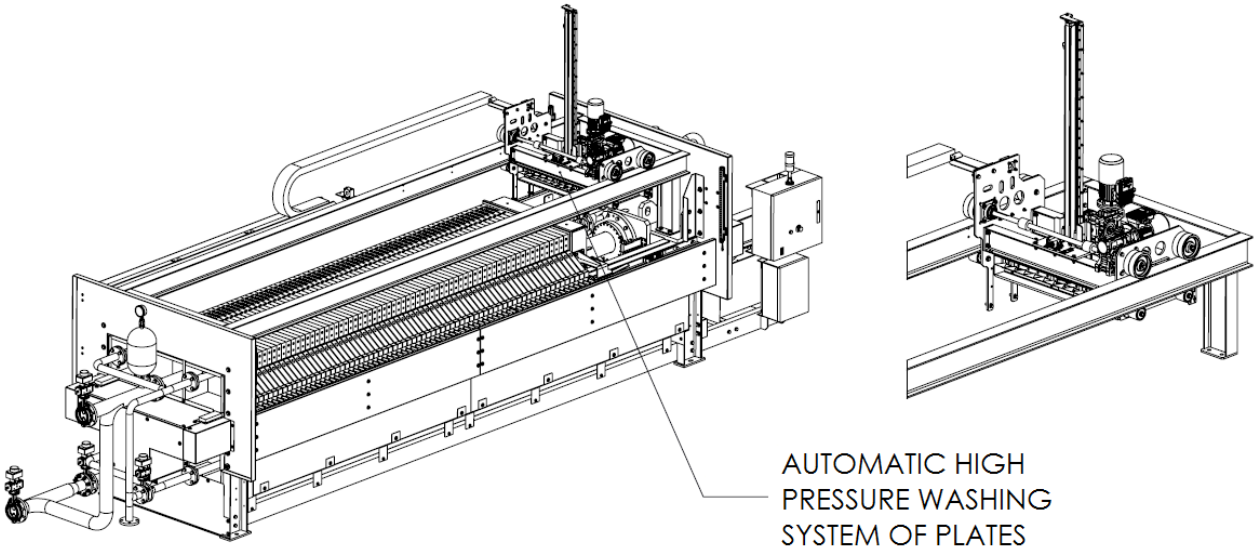




AUTOMATIC WASHING SYSTEM

The automatic washing unit is a portal structure that must be installed above the filter press frame.
A carriage equipped with a washing bar slides on this structure (with a number of nozzles able to guarantee coverage of the entire surface of the filtering cloth).
Washing is performed at high pressure. The carriage slides horizontally along the entire length of the machine and can be raised and lowered in order to clean the cloths in all its vertical development.
Standard high pressure washing is performed at 80-100 bar (the accumulation of material between the cloths can compromise the correct functionality of the machine wich can cause serius frame breakages).

The group is completed by a special pumping skid (optional) consisting of:
- High pressure piston pump
- Compensation bag
- Tank for industrial water
- 3-way valves
- Level probe, etc...
- Connection between acid skid and filterpress is not supplied



ACID CLOTH WASHING

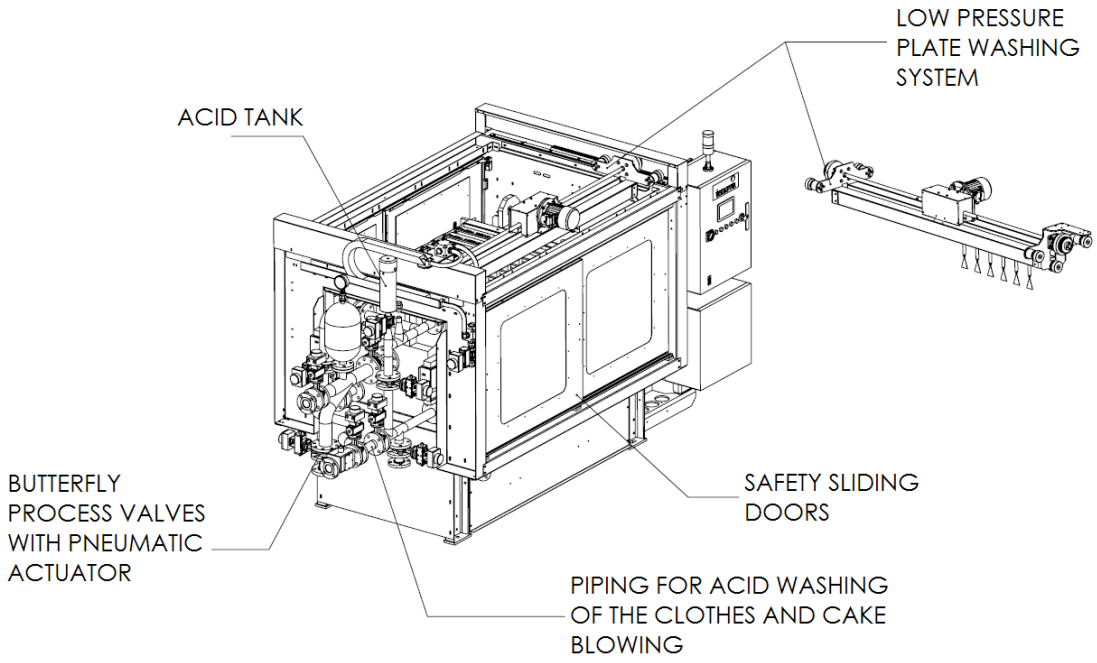
When the sludge to be filtered is very sticky and encrusts the filtering cloths very quickly (causing problems related to filtering pressure, filtering times, etc ...), acid washing of the cloths is the device you were looking for.

How does acid washing of filtering cloths work?
Normally hydrochloric acid diluted from 3 to 5% is used.

First of all, it should be highlighted, even if it may seem trivial and superfluous, that the acid washing of the cloths is performed when there is no sludge inside the volume of the machine.
It is therefore an off-cycle step and, usually, the user decides when performing this cleaning cycle (intervening by HMI inserting how many cycles or working hours he wants to perform acid washing).
This washing works by flooding: the machine will close the filtering plates pack, through the hydraulic cylinder mounted in the fixed rear head, under pressure.
Through specific automatic valves usually placed in the lower discharge line; hydrochloric acid is inserted inside the plates of the machine. The acid delivery ends when the acid begins to escape from the upper filtered manifolds; the filling signal of the machine can be obtained through a level probe, ultrasonic level or through a timer.
At this step all the automatic valves remain in closed condition allowing the acid to interact with the filtering cloths.
Once the end of the acid wash is established (the operator can set the time value in filterpress HMI), the acid drain valve is opened and, by gravity, the acid comes out from the machine.
Based on the type of process to be carried out, the acid can be sent back to the same tank from which it was taken, or sent to a second tank from which it must be refined and reused.

This device is mainly composed by a series of automatic valves:
- Acid inlet valve
- Acid outlet valve
- Automatic shut-off valve(s); this valve allows to divide the acid input circuit from the output one.

As option we can also provide the acid skid composed by:
- 3 - 5% acid tank
- Centrifugal pump
- Valves and piping
- Connection between acid skid and filterpress is not supplied



MATERIAL VERSIONS AND FULL COVERING OF THE MACHINE.

For very chemically aggressive liquid we can provide special covering material such as polypropylene, Inox AISI or also ebonite covering, depending on the pH of the material to be treated. Also Piping can be done in these materials.

CONTACTS

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