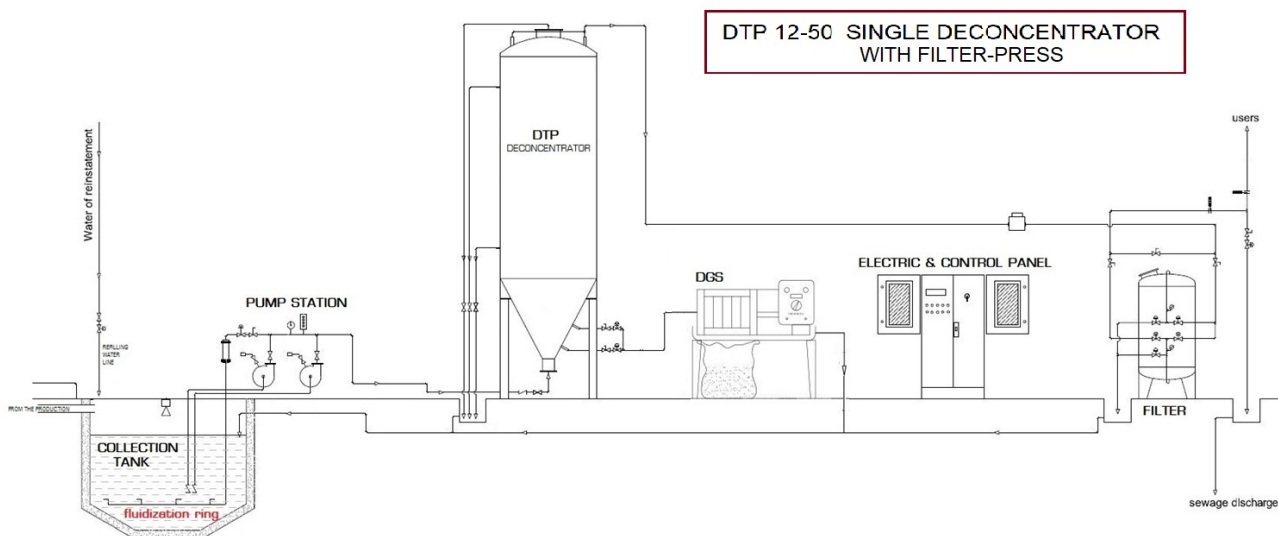


THE DTP IS A TREATMENT PROVIDING THE CLEANING OF THE WATER THROUGH A PHYSICAL-DYNAMIC SEPARATION COMBINED WITH A FILTRATION PROCESS

Image of the technical scheme:



To simplify the explanation, the different phases are divided as follows:

COLLECTION OF PROCESSING WATER

- 1) Dirty water coming from the factory flows through the channels and is collected in the Collection Tank
- 2) An initial filter, in a small pit just before the collection tank, is provided to stop possible big parts and extraneous material from entering.
- 3) In the bottom of the collection tank operates a fluidization ring made with several water jets fed by the primary pump (see **PUMP STATION**). Its function is to prevent the sludge from collecting in the corners and the bottom of the tank

PUMP STATION

- 4) Two identical pumps operate with daily alternate cycles to take the water from the tank and to send it through the treatment system.



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CONTROLLO DELLA PRODUZIONE IN
FABBRICA
1090-1:2009+A1:2011

I.M.M.E.S. SRL
Via dell'Industria, 5
30010 Campagna Lupia (VE)
Tel. +39 041 5140453
Fax. +39 041 5140452
info@immmes.com
amministrazione@pec.immmes.com
www.immmes.com

- WATER TREATMENT SYSTEM -

- 5) Each pump is installed with its own non-return valve, filter and anti-cavitation system fitted on its intake pipe
- 6) A small part of the pumped flow, returns into the collection tank to supply the fluidization ring
- 7) All the DTP system is filled of water and it operates completely under the pressure given by the initial pump. This is maintained right through to the processing machines.
- 8) Several visual and electronic pressure meters control the pumps' work and provide information to the main CPU.

DECONCENTRATOR

- 9) This is the main tank where the physical - dynamic separation, between water and glass mud, occurs
- 10) The dirty water is pumped into a small hole in the bottom part of the tank and then flows out from the top of the tank almost completely cleaned.
- 11) Inside the Deconcentrator there is a particular fixed circuit, that forces different speeds in the water flow, which achieves the separation of the suspended solids and particles of glass from the main body of water
- 12) The glass mud remains automatically in two chambers in the lower part of the Deconcentrator
- 13) The clean water, at the end of this circuit, flows out from the top of the tank
- 14) The glass mud is regularly disposed off from the Deconcentrator by the programmed operation of 2 pneumatic valves (see **SLUDGE DISPOSAL**)
- 15) The sequence of the 2 pneumatic valves operation is at scheduled times controlled by the data coming from the flow controls.

MICRO FILTRATION

- 16) After the exit from the Deconcentrator the water is filtered (still pushed by the initial pumps' pressure) through a traditional multi-mineral filter
- 17) The quality of this filtration is a result of this MICRO FILTRATION. Residual solids particles' dimensions are less than 10 microns and total ppm remained is less than 10 mg/lit. The water quality is clear. (LIMPID)
- 18) After filtration the clean water flows directly to the processing machines through an existing distribution ring (always with the pressure generated by the initial pump)
- 19) This mineral filter is self-cleaning on a daily cycle. This operation takes about 35/40 minutes and is normally foreseen during the night or at a selectable convenient time (it is an automatic-start operation according with the settings and can take place also during the week-end or holidays)
- 20) The mineral filter combination of circuits allows in automatic-mode the followings: WORK – SELFWASHING – RINSE – FILTER BYPASS (this last one is only in safety mode). The rinse (back-flushing) water is dumped to waste.
- 21) Inside the filter, 2 iron plates with dozens of holes on each. Each hole is fitted with an ejector, which holds the minerals inside the unit and lets the water pass through, both during the WORK and the SELFWASH and RINSE cycles.



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- 22) The dirty water discharged during the self-washing cycle returns into the initial collection tank.

SLUDGE DISPOSAL (from the Deconcentrator)

- 23) The Deconcentrator's two sludge discharge lines with water which is heavy charged with glass mud, leads to a "Big-Bag" filtration station.
- 24) Two disposable big bags filter the water, keeping inside the bag the solids (sludge) and filtering the residual water into a base tank/basin and from there back to the initial collection tank.
- 25) The removal of the big bag, when filled with solid sludge, is made with a simple forklift and replaced with a new one.
- 26) The Filterpress (DGS) is available as OPTION to replace the Big-Bag station for a faster extraction of dried sludge. The DGS is given as standard for the systems from 70 m³/hour and bigger

ELECTRIC PANEL AND CONTROLS

- 27) All functions are selectable in a Manual or Automatic mode; the normal use is in Automatic
- 28) The control cabinet is fitted with all the switches enabling these options and for each single function
- 29) A PLC, with touch screen, enables the management of all parameters and controls of the system, divided into several user menus
- 30) An inverter manages the pump/s RPM and power consumption to ensure the right power is supplied for the required water flow
- 31) The main control board registers all the warnings or alarms, and a combination of warning lights and/or sounds start when a situation occurs. (customizable)
- 32) The system includes a connection board to enable the Remote Control for after sale assistance or (optionally) for the Remote Staff Control of the system
- 33) The DTP system is equipped with a station for the real-time measurement of pH and, if necessary, a system for the automatic adjustment or maintenance of the value within limits set by the customer, can be activated.

ESPANSIONE E MODULI OPZIONALI

- 34) The DTP system is perfectly expandable simply by adding other purification modules (Deconcentrator + Filter) to the existing system. It is advisable to install the **Predisposition**, with pumps and control systems already suitable for supporting future expansion.
- 35) If necessary, the DTP can take the water to be treated either from the underground tank or from an above-ground tank (point 1).
- 36) On request, the system can be remotely controlled directly from the management or client operators from home or office via mobile devices or PC (user authentication required).



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- WATER TREATMENT SYSTEM -

- 37) If the factory works 24/24 there are various ways to keep the system active 24/24 even during the Backwash phase (points 20 and 21)
- 38) The fully automatic management, based on the constant analysis and processing of the working parameters, makes it possible to interface the DTP with any machine or central control system. Expansions are available for data-export or management of bidirectional consents on the basis of settable values (e.g. sending a message to the operator of a machine - or to the machine itself - if the pressure drops below 2.0 bar).

GENERAL INFORMATION

- 39) The DTP supplies, in one single water outlet, all its nominal capacity of water, all treated and cleaned with the mentioned quality parameters (see **MICRO FILTRATION**)
- 40) It is suitable for 23.5 hours work on a 24 cycle. A 24/24 (continuous operation) module is optional if required
- 41) The system is available in different sizes from 12 to 250 m³/hour (see table joined) to satisfy all requirements, from the small laboratory to the giants of glass processing.

Finally, we ask you to match the above information with the **DTP Advantages** sheet, trying to get a collection of benefits and performances that, we can assure, are unique into the world.

A **Business Plan** template is available upon request that will allow you to compare your investment and operating costs to your current system or to potential competing choices.



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