PCM PUMPS FOR WASTE WATER TREATMENT PLANT APPLICATIONS

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PCM | keep it moving

YOUR DAILY PARTNER FOR THE TREATMENT OF LIQUID WASTES

Efficient management of waste water is a key aspect in the protection of our environment. PCM provide transfer and dosing pumps solutions for the different fluids involved in the process such as the feeding of dehydration equipments or the dosing of chemical products with accuracy to avoid wasting.

Pumping equipments play a key role in the in the WWTP sector. They guarantee cost-effectiveness operations allowing the smooth managing of the differents stages.

PCM's pumping solutions cover a wide range of applications and are designed to ensure the high performances required in WWTP for the transfer of sludges (liquid, thickened or dehydrated) and for the dosing of chemical products (lime milk, polymer, ferric chloride). PCM is a reliable partner for every stages of the process, from the pre-treatment to the evacuation of residual wastes.

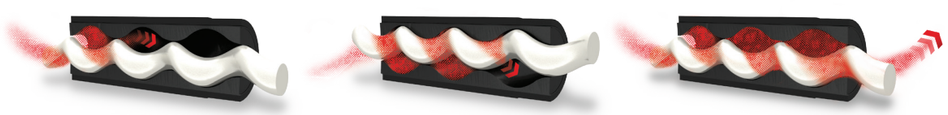
Thanks to its expertise and know-how since 1932, PCM know exactly the hydraulic challenges for the pumps reducing the energy concumption, compared to competitors with the same performance products.

All of this to serve you and help the environment, exactly as you do !

PCM'S TECHNOLOGIES FOR YOUR ACTIVITY

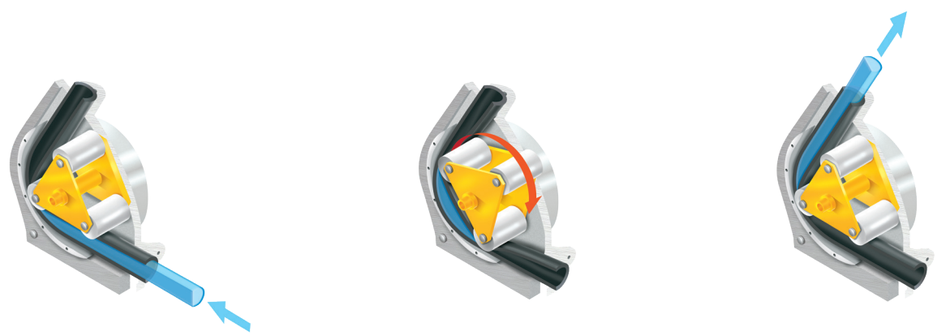
PRINCIPLE OF THE PCM MOINEAU™ TECHNOLOGY

A PCM Moineau™ pump consists of a helical rotor turning in a helical stator. When the rotor turns inside the stator, the honeycomb progresses spirally along the axis of the pump without changing either shape or volume. This action transfers the product from the pump suction to the pump discharge without degrading the product. PCM is the inventor of this principle and has an unequal know-how of this technology. This kind of pump is the most used for the transfer of sludge, from liquid ones to dehydrated ones, thanks to his reliability in handling abrasive products.



PRINCIPE OF THE PERISTALTIC PCM DELASCO™ TECHNOLOGY

The peristaltic pumping principle is based on the capacity of a soft elastomer hose to accept a deformation and subsequently recover its initial shape. Peristaltic pumps are provided with either high or low pressure hoses, covering a wide range of applications which need versatility and flexibility. Thanks to its all-elastomers construction, this technology is perfect for the dosing of reagent and chemicals that are not compatible with metallic parts. Moreover the peristaltic pumps are seal-less constructed, are able to dry run and are quiet (very low shear of the pumping action).

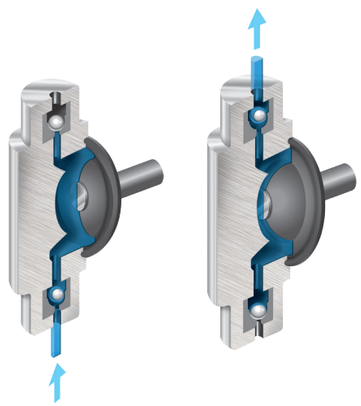


PRINCIPLE OF THE METERING PUMP LAGOA

The PCM Lagoa pump is composed of a diaphragm connected to a piston of which the alternating movement successively fills and empties the pumphead.

This pump is the most used in the dosing of chemically aggressive reagent, thanks to its stainless steel or plastic mono-material construction, with a PTFE membrane.

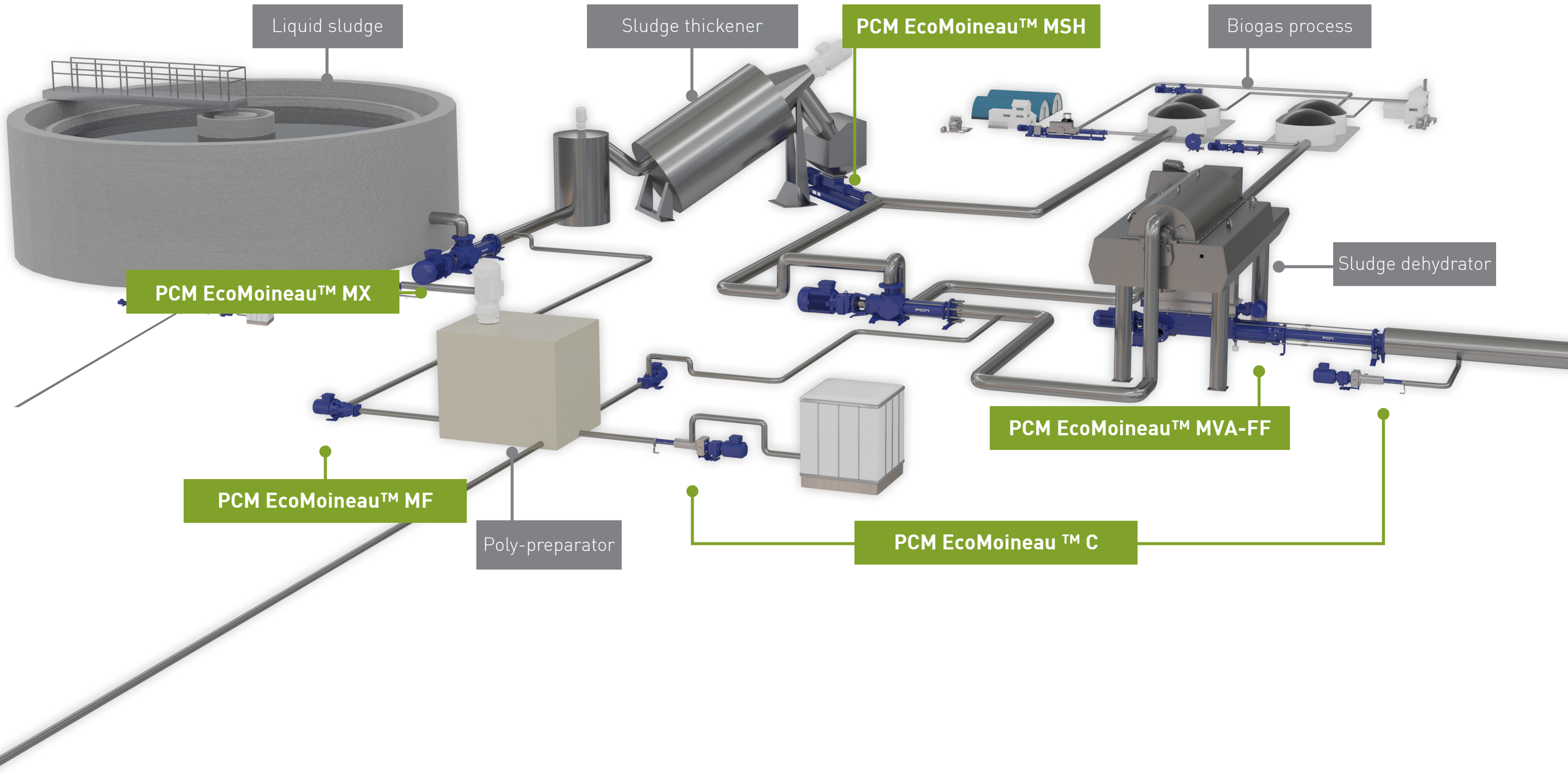
Dosing accuracy and repeatability are guaranteed.



PRINCIPLE OF THE MACERATOR PCM X-GUARD

The mechanical action of the rotating knife throwing the static knife, makes the PCM Xguard the best solution to protect your equipments. Installed before the pumps and the dewatering machines, it avoids failures by grinding all the big pieces you can find in the liquid. Its heavy design makes PCM X-Guard machine a real asset in the minimization of downtime and maintenance operations.

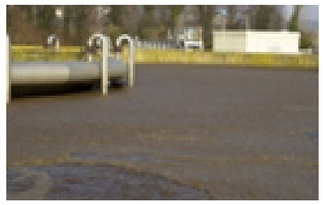
PCM AT THE HEART OF ENVIRONMENTAL PROCESS



WE KNOW YOUR FLUIDS AND THE BEST TECHNOLOGY TO HANDLE THEM!

LIQUID SLUDGE.
(Step 1)

Going from 0.5% up to 5 % dry content concentration, liquid sludge is the beginning of the depuration cycle in waste water treatment plant. Liquid sludge is abrasive and can contain sand or particles, therefore PCP pumps are used to transfer those kind of fluids.
Usually PCP pumps move liquid sludge from the primary to the secondary sedimentation, or feed directly dehydrating systems such as screw press, centrifugal decanters or thickeners.



THICKENED SLUDGE.
(Step 2)

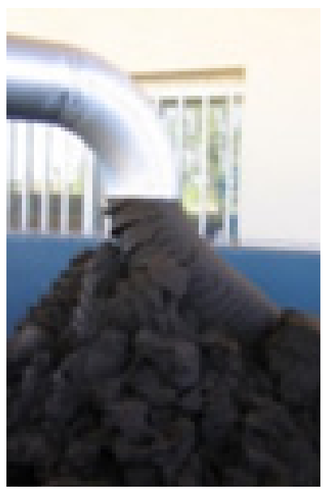
First stage of the dehydration process, the liquid sludge is treated to decrease the water content.
Depending on the technologies, this fluid could reach up to 10% of solid content increasing a lot its viscosity.
Usually, a PCP with hopper is needed to transfer this fluid. The use of an archimedean screw depends on the concentration of solids and the risk of decantation. Below 6/8% of solids, it is not mandatory, but if the concentration is higher, it is warmly recommended.

DEHYDRATED SLUDGE
(Step 3)

It is the last step of dehydration before stockage or drying. The fluid coming out from machines such as screwpress, centrifugal decanters or filter press could reach up to 45 % of solid content.

(Step 4)
Dehydrated sludge is very viscous, sticky and sometimes has a solid aspect like a powder. The only way to convey this fluid is with a PCP pump fitted with hopper and an Archimedean screw.

(Step 7)
Depending on some parameters it could be also necessary to install first a bridge breaker to avoid sludge blockage in the hopper, and second a lubrication system in the discharge pipe injecting polymer to decrease pressure losses. .
PCP has a lot of major benefits compared to classical screw conveyors such as the possibility of long distance transfer (also with curves), avoiding bad smells and dirty working ambients.



CONCENTRATED POLYMERE
(Step 5)

The polymer is a chemical that helps the flocculation of the sludge and the consequent separation of the solid phase from the water.
In its pure form it has a 2% concentration. Depending on its formulation, it could be catiodic or anionic and could react differently with rubber compounds. PCP or peristaltic pumps are able to handle this fluid to have a precise dosing inside the polypreparator, allowing also a secure compatibility of materials in contact.

DILUTED POLYMERE
(Step 6)

It is the fluid coming from the mixing of the concentrated polymer with water. Usually it is diluted to achieve a 0.2% concentration. Then it is dosed into the liquid sludge, just before the dehydrating systems. This polymer is composed by molecular chains that will react with sludge to allow flocculation. PCP technology is perfect for maintaining the integrity of those chain due to the low shear of its pumping actions. Furthermore, the dosing precision of the pump is a basilar aspect as the ratio between sludge and polymer is very important for downstream equipments.

LIME MILK
(Step 8)

The lime milk is the result of the dilution of lime with water. This product (liquid or solid) is used to help sludge neutralization in different stages of the process.
The choice of the technology is based on its abrasivity. For small flowrates, the peristaltic technology is preferred. PCP is suggested for bigger flowrates.
Suited elastomers (specially designed to resist such kind of abrasivity) as long as the correct pump dimensioning need to be carefuly selected. Our recommandtation is a low rotation speed and a multistage pump.

PCP MOINEAU™ SERIES FOR WASTE WATER TREATMENT PLANTS

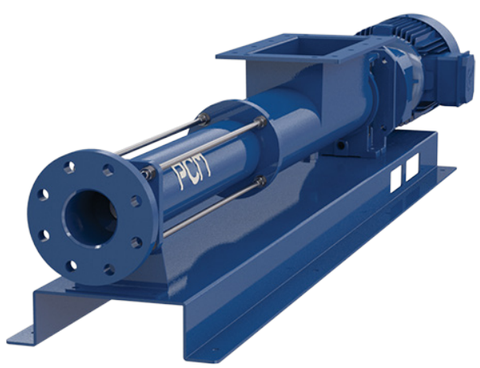
PCM EcoMoineau™ MX series is one of the most compact pump in the market, thanks to its patented three-screw shaft line. It is the best choice for liquid sludge transfer or thickened sludge with low dry content.

The **PCM EcoMoineau™ MX** pump is specially designed to offer easy and fast maintenance with its integrated in-place maintenance system as standard. Maintenance operations can be carried out on-site without removing the pump from its installation, reducing downtime and optimizing industrial productivity. In addition to its in-place maintenance system, this pump stands out with unmatched performance. It combines the advantages of eccentric screw pump technology with the characteristics of progressive cavity pumps, providing optimal efficiency and proven reliability in various industrial applications

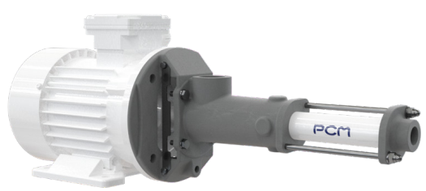
PCM MVA-FF serie is the pump dedicated to the transfer of dehydrated sludge. Equipped with a 1000 mm hopper and an open Archimedean screw, this pump is able to transfer sludge up to 45 % of dry content reaching up to 24 bar of pression.
For very challenging applications, the pump is equipped with a bridge breaker, to help sludge flowing inside the hopper, and a lubrication kit at the discharge, to decrease pressure losses along the piping thanks to a polymer injection.

PCM EcoMoineau™ MF pump: the floating stator pump developed for the diluted polymer dosing. Simple in the construction, with a low maintenance cost. A must-have for the polymer dosing with its floating stator technology.

PCM MSH pump: hopper pump with open Archimedean screw, perfect for the transfer of thickened sludge or low dehydrated sludge. The pump can handle a viscosity up to 50000 cps.



PCM EcoMoineau™ C series is a full stainless steel pump used mainly for the precise dosing of concentrated polymer.
To be fitted on polypreparation machine, the design is very compact. This kind of pump is also used for the injection of the polymer for piping lubrication during the dehydrated sludge transfer.



contact@pcm.eu
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