

INDUSTRY



**PCM CHEMICAL  
PUMPING  
SOLUTIONS**

[www.pcm.eu](http://www.pcm.eu)

**PCM**

keep it moving



## YOUR DAILY PARTNER FOR CHEMICAL PUMPING SOLUTIONS

**PCM Group has over 90 years of experience** in the manufacturing and installation of precision chemical dosing or transfer pumps over a large variety of industries.

**Safety is our priority**, we understand the associated risks with handling chemicals on site. Our technical expertise can assist with selecting compatible materials and managing the risk with safety systems in place.

















**PCM offers complete solutions** including the after-sales support and in-field training to share our knowledge and expertise. This can range from hands on support to explain any issues and resolutions, to presentations tailored to sites to help increase knowledge on maintaining your equipments.

**PCM will work with you** every step of your process to **optimize your installation**. **PCM has mastered the hydraulic design** of its pumps to meet all your challenges.

# PCM AT THE HEART OF THE CHEMICAL PROCESS



## NON-EXHAUSTIVE LIST OF CHEMICALS

							
Sodium Hydroxide $\text{NaOH}$	Ammonia Liquid $\text{NH}_4\text{OH}$	Ferric Sulphate $\text{Fe}_2(\text{SO}_4)_3$	Lime $\text{CaCO}_2$	Hydrogen $\text{H}_2$	Sulphuric Acid $\text{H}_2\text{SO}_4$	Polyelectrolyte $\text{SO}_3^-\text{Na}^+$	Potassium $\text{K}^+$
							
Sodium $\text{Na}^+$	Ferric chloride $\text{FeCl}_3$	Phosphoric Acid $\text{H}_3\text{PO}_4$	Hydrochloric Acid $\text{HCl}$	Aluminium $\text{Al}$	Sodium Carbonate $\text{Na}_2\text{CO}_3$	Sodium Bisulphite $\text{NaHSO}_3$	Calcium Nitrate $\text{Ca}(\text{NO}_3)_2$

Step 1 : Dosing pumps  
Step 2 : Transfer pumps

# PCM TECHNOLOGIES FOR YOUR BUSINESS

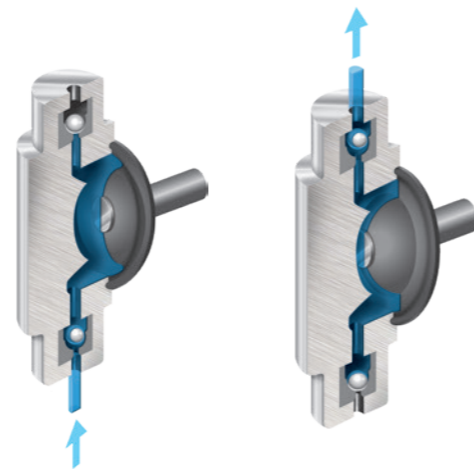
## › PRINCIPLE OF MOINEAU™ TECHNOLOGY

A Moineau™ pump consists of a helical rotor turning into 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. This basic principle of Moineau™ pumps allows a high accuracy of flow and pressure, making these pumps extremely efficient for transferring and dosing the most complex fluids



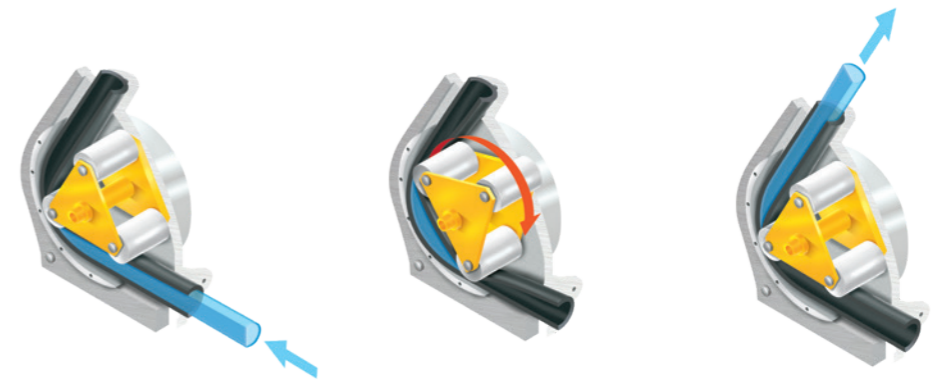
## › PRINCIPLE OF THE METERING PUMP LAGOA

The PCM Lagoa pump is composed of a diaphragm connected to a piston, whose alternating movement successively fills and empties the pump head. This pump is 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.



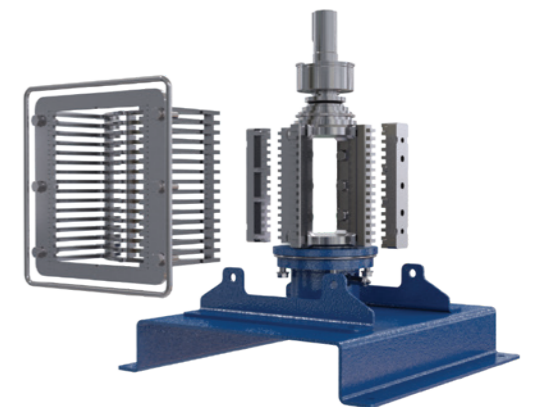
## › PRINCIPLE OF THE PERISTALTIC PCM DELASCO™ TECHNOLOGY

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 quiet (very low shear of the pumping action).

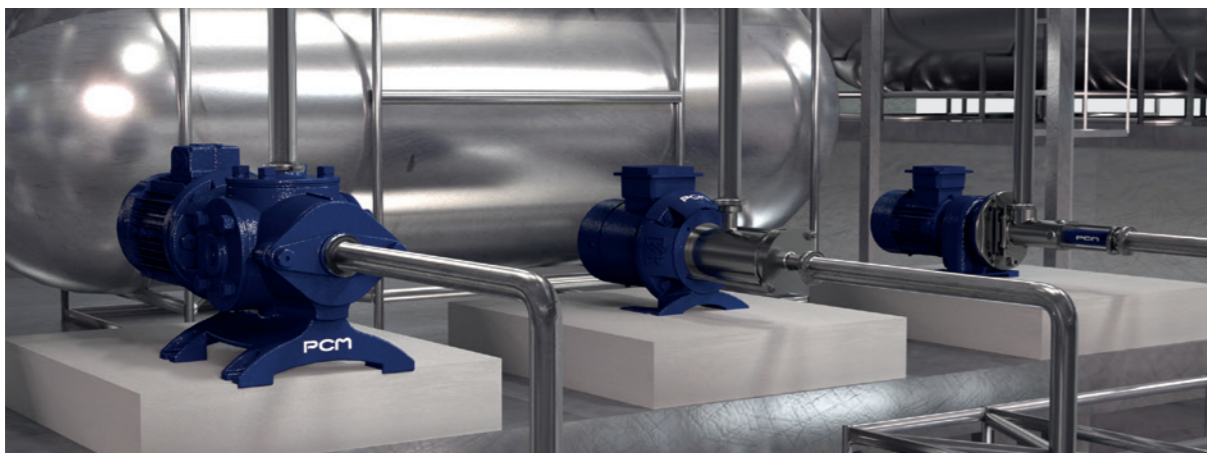


## › PRINCIPLE OF THE GRINDER PCM X-GUARD

The mechanical action of the rotating knife throwing the static knife, makes the PCM Xguard the best solution to protect your equipment. Installed before the pumps and the dewatering machines, it prevents failures by grinding all the large pieces found in the liquid. Its heavy duty design makes the PCM X-Guard machine a real asset in minimizing downtime and maintenance operations.



# STEP 01 DOSING PUMPS



## PCM ECOMOINEAU™ MF & CF : FLOATING DOSING STATOR PUMP

PCM EcoMoineau™ progressing cavity pumps with floating stator, based on Moineau™ technology, are ideally suited to space-constrained environments.

Fitted with a frequency converter they can often be used as a metering pump, outperforming conventional metering pumps for viscous, charged or abrasive liquids.

Their compact, robust design makes them an ideal choice for integration into machines or systems.

With its simple design, this range combines a number of advantages:

- Small footprint, with the rotor directly connected to the drive unit.
- Simple, robust construction in stainless steel or cast iron to suit all types of application.
- Ideal for dosing fragile and viscous fluids.
- Very low maintenance costs (few wearing parts).
- Easy to fit into small spaces or existing installations.
- Can be mounted on a trolley for versatile use.

### PCM ECOMOINEAU™ MF

PERFORMANCE
<ul style="list-style-type: none"> <li>• Flowrate : 15 à 6500 l/h</li> <li>• Pressure : 5 bar (10 bar – 4M12F)</li> <li>• Maximal temperature : 80°C</li> <li>• Particles size : 8 mm</li> </ul>
CONSTRUCTION
<ul style="list-style-type: none"> <li>• Cast iron body</li> <li>• 316 L stainless steel or chromed 100µ rotor</li> <li>• NBR, CR or FKM PCM stator</li> </ul>

### PCM ECOMOINEAU™ CF

PERFORMANCE
<ul style="list-style-type: none"> <li>• Flowrate : 15 à 21 000 l/h</li> <li>• Pressure : 5 bar</li> <li>• Maximal temperature : 80°C</li> <li>• Particles size : 8 mm</li> </ul>
CONSTRUCTION
<ul style="list-style-type: none"> <li>• Stainless steel body</li> <li>• 316 L stainless steel rotor</li> <li>• NBR, CR, FKM PCM stator</li> <li>• Various connections</li> </ul>

## PCM LAGOA PRECISION AND RELIABILITY FOR SUCCESSFUL BLEND

Lagoa PCM pumps are designed to dose a wide variety of products for **chemical and environmental applications**.

The part of the diaphragm in contact with the product is chemically inert, and the dosing heads are available in a range of materials to ensure total compatibility with different types of fluid.

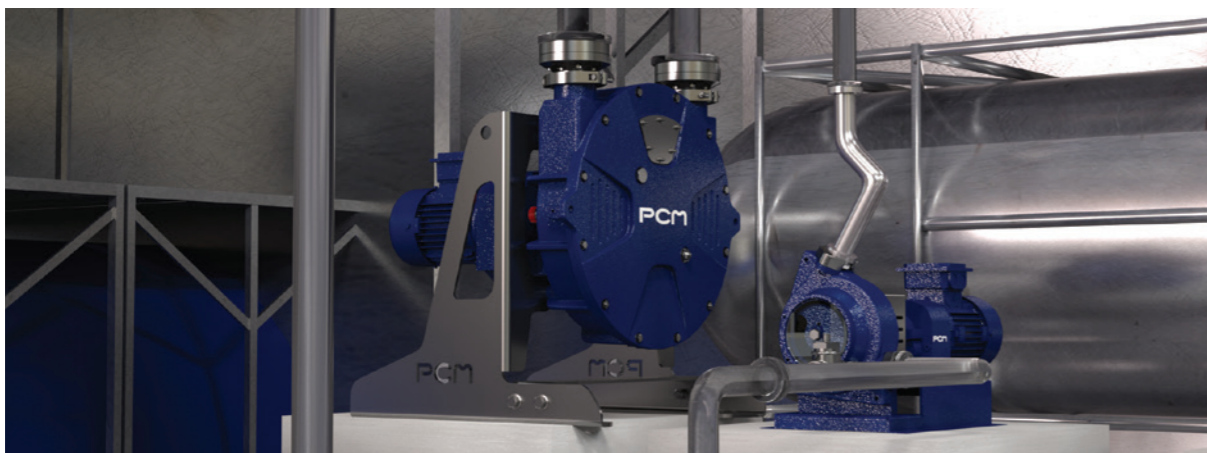
The pump's capacity is adjusted by a graduated micrometric vernier, which can be locked to prevent unintentional adjustment. This makes the **PCM Lagoa diaphragm pump an effective solution for precise, reliable dosing** in all types of industry.

Customizable, the PCM Lagoa range offers several advantages:

- Pumps can be multiplexed for proportional dosing of different fluids.
- Different metering head materials available to meet the requirements of all types of fluid.
- Wide range of accessories available to secure the installation and optimize dosing.
- Dry running possible without risk of damaging the pump.
- Robust pump body and stroke, greatly reducing maintenance costs.



PERFORMANCE	CONSTRUCTION
<ul style="list-style-type: none"> <li>• Flowrate : 315 l/h per dosing unit</li> <li>• Pressure : 12 bar</li> <li>• Maximal temperature : 90°C</li> <li>• Particles size : no particle</li> <li>• Dosing precision : +/- 1%</li> </ul>	<ul style="list-style-type: none"> <li>• Body : cast iron</li> <li>• Dosing unit in polypropylen, PVC, stainless steel or food contact stainless steel, PVDF</li> </ul>



**PCM DELASCO™ DX & Z : PERISTALTIC PUMPS FOR FRAGILE, ABRASIVE AND CORROSIVE PRODUCTS**

Delasco™ PCM peristaltic pumps offer unrivalled versatility and flexibility, thanks to their various constructions and the variety of elastomers available.

They are simple to operate and maintain, making them suitable for a wide range of applications. Their low-speed operation and the fact that the fluid passes through the tube without agitation make them **ideal pumping solutions for fragile and/or abrasive liquids.**

They are also the perfect solution for corrosive liquids, as only the inside of the tube is in contact with the pumped products.

- Suitable for pumping abrasive fluids with a high solids content (up to 80%), high-density, corrosive, shear-sensitive/fragile, viscous, multiphase/gaseous, crystallising fluids.
- Low-energy costs thanks to low operating speeds.
- High-suction power, self-priming and dry running possible without damaging the pump
- Anti-pollution design: the 100% sealed body contains the fluid in the event of a tube rupture
- Ergonomic integration of accessories, accessible from the rear of the pump
- On-site maintenance and downtime reduced thanks to quick tube change system

**PCM DELASCO™ DX**

PERFORMANCE
<ul style="list-style-type: none"> <li>• Flowrate : from 20 to 100 000 l/h</li> <li>• Pressure : 15 bar</li> <li>• Maximal temperature : 80°C</li> <li>• Particles size : 33 mm</li> </ul>
CONSTRUCTION
<ul style="list-style-type: none"> <li>• Cast iron body</li> <li>• NR, EPDM or NBR hose</li> <li>• Stainless steel or polypropylene connections</li> <li>• Hose compression thanks to skates</li> </ul>

**PCM DELASCO™ Z**

PERFORMANCE
<ul style="list-style-type: none"> <li>• Flowrate : from 50 to 20 000 l/h</li> <li>• Pressure : 2 bar</li> <li>• Maximal temperature : 80°C</li> <li>• Particles size : 20 mm</li> </ul>
CONSTRUCTION
<ul style="list-style-type: none"> <li>• Cast iron body</li> <li>• CSM, EPDM, NR, CR, Silicon hose</li> <li>• Stainless steel or polypropylene connections</li> <li>• Hose compression thanks to rollers</li> </ul>

**STEP 02  
TRANSFER PUMPS**



**PCM ECOMOINEAU™ C : THE VERSATILE, CORROSION-RESISTANT TRANSFER PUMP**

With its robust design, the **PCM EcoMoineau™ C** is built using materials that can withstand the challenges of corrosive chemical transfer application. Additionally, it incorporates a variety of hydraulics developed by PCM, optimizing the pump's service life based on the pumped product.

The **PCM EcoMoineau™ C** progressing cavity pump offers a lighter design, requiring fewer raw materials, **while consuming less energy** than other pump technologies.

- Stainless steel pump casing and flanges to resist corrosion.
- Durable and robust E-CTFE-coated shaft line design: increased service life for corrosive and abrasive applications.
- Patented 3 screw connection system for quick and easy maintenance of wear parts.
- Wide choice of stator and rotor materials and a large range of flanges to suit all environments.
- Reduced energy consumption compared with other pump technologies.

PERFORMANCE	CONSTRUCTION
<ul style="list-style-type: none"> <li>• Flowrate : 240 m3/h</li> <li>• Pressure : 24 bar</li> <li>• Maximal temperature : 110°C</li> <li>• Particles size : 40 mm</li> </ul>	<ul style="list-style-type: none"> <li>• 316L stainless steel body</li> <li>• EPDM, NBR, NBR EU-FDA, FKM, NR, IR stator</li> <li>• Clamp, SMS, DIN 11851, MACON, Bride ISO PN40 CLASS 150 connections</li> <li>• E-CTFE coated shaftline</li> </ul>



**PCM ECOMOINEAU™ LX :  
RESPECT OF THE PUMPED PRODUCT'S CHARACTERISTICS**

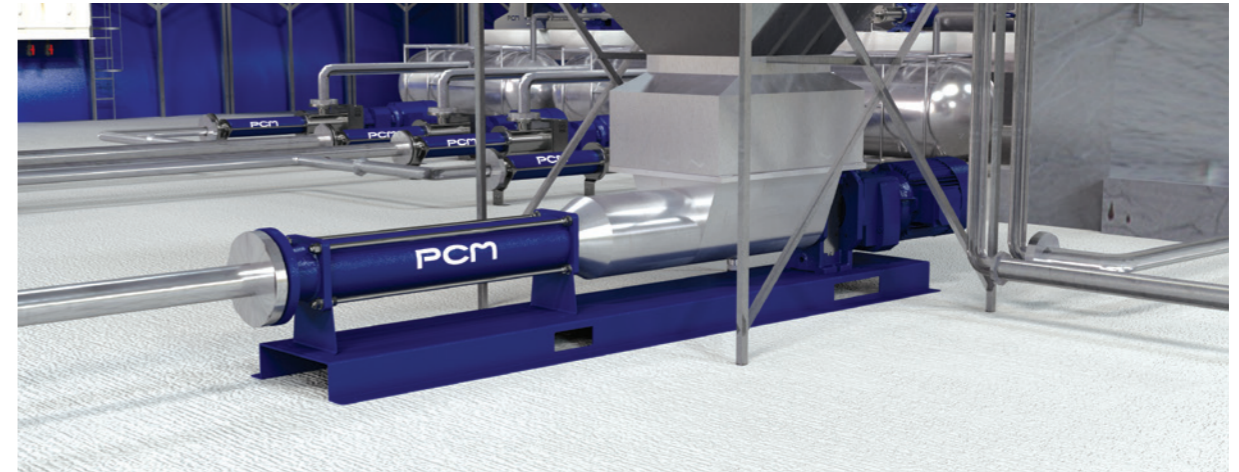
The **PCM EcoMoineau™ LX pump** has been designed to respect the properties of the pumped product and to ensure its proper use in the rest of the process. Unlike the PCM EcoMoineau™ C, PCM EcoMoineau™ LX consists of a **flexible connecting rod and does not use sheaths**. As a result, this eliminates the risk of contamination of the pumped product by preventing grease, oil or metal particles from being released into the fluid.

Furthermore, the body design has no retention zone, preventing product loss and the potential expiry of any product present in these areas.

**The PCM EcoMoineau™ LX design therefore offers several advantages:**

- Superior corrosion resistance thanks to the flexible titanium shaft line,
- Absence of wear parts, which prevents any risk of metal particles being dropped into the product.
- No sheaths and therefore no grease or oil in the pump body, so no risk of product contamination.
- Use of the high-performance PCM range of elastomers to guarantee the pump's service life, depending on the characteristics of the product being pumped.

PERFORMANCE	CONSTRUCTION
<ul style="list-style-type: none"> <li>• Flowrate : 240 m3/h</li> <li>• Pressure : 24 bar</li> <li>• Maximal temperature : 110°C</li> <li>• Particles size : 40 mm</li> </ul>	<ul style="list-style-type: none"> <li>• 316L stainless steel body</li> <li>• EPDM, NBR, NBR EU-FDA, FKM, NR, IR stator</li> <li>• CLAMP, SMS, DIN 11851, MACON, Bride ISO PN40 CLASS 150 connections</li> <li>• Titanium flexible shaft</li> </ul>



**HOPPER PUMPS PCM MSH :  
TRANSFER AND DISPOSAL OF DRY AND VISCOUS PRODUCTS**

The **PCM MSH** hopper pumps range **transfers dry and viscous materials**. that involve viscous, pasty, sticky, rich in dry matter or contain solid particles fluids are common and lead to several challenges. They require pumps specially designed to cope with these difficult conditions.

Its stainless steel or carbon steel design makes it resistant to **chemical attack**.

- Closed Archimedean screw for non-sticky viscous products.
- Open Archimedean screw to transfer products with a risk of compaction.
- Its robust stainless steel design meets the challenges of the chemical industry.

PERFORMANCE	CONSTRUCTION
<ul style="list-style-type: none"> <li>• Flowrate : 70 m3/h</li> <li>• Pressure: 24 bar</li> <li>• Maximal temperature : 110°C</li> <li>• Particles size : 40 mm</li> <li>• Maximum dryness : 18%</li> <li>• Maximum viscosity : 40 000 cPo</li> </ul>	<ul style="list-style-type: none"> <li>• Stainless steel or carbon steel body</li> <li>• Open or closed Archimede screw regarding the pumped product</li> <li>• EPDM, NBR, FKM, NR, IR product</li> </ul>

# PCM ELASTOMERS EXPERTISE

René Moineau™ invented the progressing cavity pumps in 1932. **For over 90 years**, PCM has been dedicated to continuous research, development, and testing of new elastomer blends tailored to meet the diverse requirements of various industries. Throughout this time, **PCM has accumulated extensive knowledge and expertise**, investing in essential equipment and resources to enhance our ability to select, develop, and produce optimal elastomers for our customers' specific applications.

Elastomer selection demands specialized knowledge and experience, qualities that few companies possess worldwide. PCM stands out as the only progressing cavity pump **manufacturer managing its own elastomer production**. Leveraging our expertise, laboratory facilities, and dedicated production unit, we can meticulously develop and customize each elastomer blend to align with the unique characteristics of every type of fluid.

PCM's customers encounter a wide array of fluids requiring careful consideration and solutions to ensure that the elastomers used in **PCM equipment deliver optimal functional characteristics**. These include:

- Mechanical resistance to abrasion,
- Chemical resistance to the pumped fluid,
- Desired color,
- Regulations compliance and rules,
- Optimized lifetime,
- Product integrity (structure, turbidity...),
- Resistance to cleaning procedures.



## ELASTOMERS TESTING

From laboratory testing equipment to large mixers, injection presses and vulcanization ovens, PCM has all the necessary equipment and knowledge within its premises to assure **perfect control of its elastomer selection and manufacturing**.

- Mechanical tests (static, dynamic, compression, bonding),
- Tribology (abrasion, friction),
- Chemical tests (swelling tests, volume and hardness variation, thermal analysis, infrared spectroscopy).



## MAIN ELASTOMERS USED IN INDUSTRY APPLICATIONS

NBR	<b>PCM 164</b>	<b>NITRILE</b> Good general resistance in many applications especially with oil, grease products and resists abrasion. PCM NBR 164 has a good mechanical property.
	<b>PCM 209</b>	Certified EU, FDA US & 3A, PCM NBR 209 is a versatile elastomer, that can be used in a lot of different food applications.
	<b>PCM 246</b>	White elastomer, which has good mechanical properties. Mainly use in food application to transfer oil and fat product, due to his EU certification.
	<b>PCM 159</b>	<b>NITRILE - "4-WHEEL DRIVE"</b> Most versatile with its high ACN content, providing top performance across many applications.
	<b>PCM 194</b> <b>PCM 205</b>	<b>SOFT NITRILE</b> High resistance to abrasion and top performer for handling solids with varying water cuts.
HNBR	<b>PCM 198</b>	<b>HYDROGENATED NITRILE</b> For higher temperature (150°C/300°F) applications and H2S&CO2 resistance.
	<b>PCM 206</b>	Extends the limits of 159.
EPDM	<b>PCM 185</b>	<b>TERPOLYMER ETHYLENE PROPYLENE DIENE</b> Used mainly for his resistance to acids and alcohols. Meet with chemical challenge.
FKM	<b>PCM 186</b>	<b>FLUOROCARBON</b> Excellent chemical resistance. Top-of-the-range elastomer capable of withstanding extreme conditions.
	<b>PCM 189</b>	Use to transfer chemical product in food application. PCM FKM 189 is certified FDA US & 3A.
	<b>PCM 204</b>	Best performer for higher aromatics, and a good choice when nitriles are no longer effective.
CR	<b>PCM 174</b>	<b>POLYCHLOROPREN</b> Mainly used for pumped fluids with particles. Has a good property to fight against abrasion and has good general properties to withstand chemical products.
IR, NR	<b>PCM 156</b> <b>PCM 201</b>	<b>NATURAL RUBBER</b> Very good mechanical properties and resists abrasion.



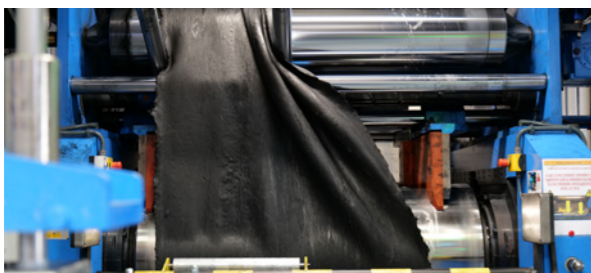
## PCM ELASTOMER MANUFACTURING PROCESS



**Numerical simulation:** fine-tune our injection parameters to ensure the efficiency of production and guarantee the good properties of our parts



**Chemical formulation:** define each ingredient and its quantity to achieve the desired characteristics



**Elastomer mixing:** thanks to our mixer, we mix all our blends in our plant. This ensures the quality and performance of our elastomers.



**Injection, moulding :** Elastomer is then injected and moulded in metal frame to produce the stator.



**Control :** Then all stators are controlled to guarantee their performance. The tightening is very important and must be precise to have the right flowrate. Other parameters controlled are the dimensions, gluing, thickening ...



**Failure analysis :** Thanks to our expertise and knowledge we are able to analyze the different stators failures to bring personalized solutions to fix it.

## PCM SERVICES

At PCM, we offer a comprehensive range of services to analyze, start up, perform maintenance, and upgrade your pumps and equipment, ensuring optimal performance and reliability.

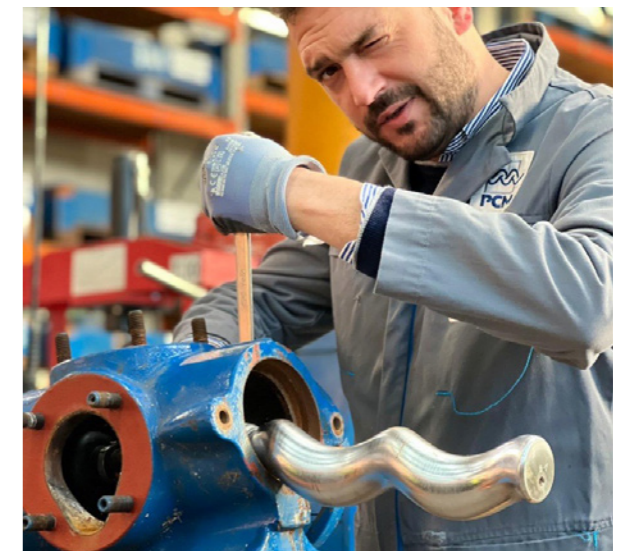
Our team of experts is dedicated to ensuring that your pumps operate at peak efficiency, delivering the best possible outcomes for your applications. By leveraging our deep industry knowledge and cutting-edge technologies, we are able to provide tailored solutions that address the unique challenges and requirements of your pumping solutions.

Our expertise spans from initial installation and auditing to ongoing maintenance and technical support, catering to all your needs to keep your systems running efficiently and effectively.

### › AFTER SALES

Maintaining your equipment is paramount for safety. Our Field Service engineers are here to support you with frequent inspections, create a service plan and carry out regular servicing of your pumps such as replacing stators/hoses, rotor within the pumps and all seals and rings.

PCM has a dedicated after sales support team for all maintenance steps. This can include yearly service agreements to maintain and extend the life of the pumps. We can also renew third party equipment where we can offer on-site refurbishments to ensure safe operation of existing pumps and minimizing downtime at site.



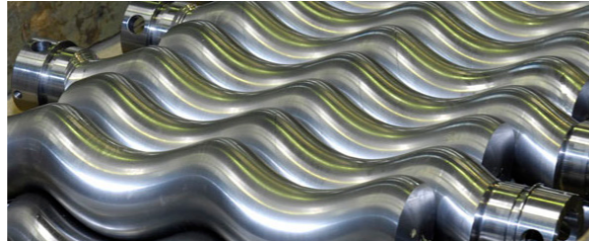
### › MAINTENANCE

Maintenance is key to extending the life of your pumps and equipment. At PCM, we offer tailored maintenance solutions, including training, corrective maintenance, and preventive maintenance, to meet your specific requirements. Our goal is to help you maximize uptime and minimize the risk of unexpected failures.



## › ROTOR AND MECHANICAL SEAL RENEWAL

Committed to reducing material waste, we also offer the possibility to renew rotors and mechanical seal. PCM can rechrome rotors to give them a second life. Similarly, we can reshape the faces of the mechanical seals so they can be reused on pumps.



## › RENTAL

For those in need of temporary solutions, we provide pumps and equipment rental. We understand the importance of keeping a plant operating whilst conducting regular service or refurbishment of existing critical equipment. We can rent pumps to keep your plant operating, which also allows engineers to conduct their work in a safe way, if the pump can be taken completely offline.



## › INSTALLATION AUDIT

Our installation audit service is designed to enhance the performance of your PCM pumps and equipment. Through detailed evaluations, we identify areas for improvement and provide actionable recommendations to optimize equipment operation and reduce maintenance costs. Our audits help you achieve higher efficiency and reliability in your installations, ensuring that your systems are always performing at their best.



## › TRAINING & DIGITAL SUPPORT

Our experienced staff can provide on-site training for new or existing pumps to maintenance engineers or operators. This can help increase site safety, hazard awareness, and improve asset management. We can provide tailored training on operation, servicing, or hazard identification.

For easy access to information on installation and maintenance, our HELLO PCM digital application provides a fast and convenient way to access data and resources related to your pumps and equipment. This application ensures that you have all the information you need at your fingertips, helping you manage your systems more efficiently.



