INDUSTRY

PCM CHEMICAL DOSING SYSTEMS

www.pcm.eu

PCM | keep it moving

YOUR DAILY PARTNER FOR CHEMICAL DOSING SYSTEMS

PCM Group UK Ltd has over 30 years of experience in the manufacturing and installation of precision chemical dosing systems spanning a large variety of industries.

Safety is our priority; we understand the difficulties and risks associated with handling chemicals. 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 chemical dosing systems.

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

PCM AT THE HEART OF THE **CHEMICAL PROCESS**

Step 1 : Dosing systems
Step 2 : Dosing pumps
Step 3 : Transfer pumps

SOME TYPICAL CHEMICALS BUT NOT LIMITED TO

Sodium Hydroxide **NaOH**	Ammonia Liquid **NH_4OH**	Ferric Sulphate **$Fe_2(SO_4)_3$**	Lime **$CaCO_2$**	Hydrogen **H_2**	Sulphuric Acid **H_2SO_4**	Polyelectrolyte **$SO_3^-Na^+$**	Potassium **K^+**
Sodium **Na^+**	Ferric chloride **$FeCl_3$**	Phosphoric Acid **H_3PO_4**	Hydrochloric Acid **HCl**	Aluminium **Al**	Sodium Carbonate **Na_2CO_3**	Sodium Bisulphite **$NaHSO_3$**	Calcium Nitrate **$Ca(NO_3)_2$**

STEP 01
DOSING SYSTEMS

CHEMSKID :
OUR COMPLETE PEACE OF MIND SOLUTION

PCMs solution for safe chemical dosing consists of smart dosing technology in a bunded enclosure. Its internal design is totally modular and adaptable to meet with your installation.

Features / benefits:

- Integrated alarms for internal leakage within the drip tray, over pressure and line blockages to maximize safety
- Outlet connections suitable for dual contained hoses
- Optional flowmeters and flow switches can also be installed for chemical consumption and monitoring
- Available with either a diaphragm or peristaltic pumps upon request
- Wide range of materials available: PVC, PP, PVDF, St/St

With the electrical termination box, isolators and e-stops located outside the enclosure, this system can be operated with minimal requirement for the operator to be in contact with chemical splashes.

We can offer the CHEMSKID single, double, triple stream configurations to provide you with the best possible support to reach those difficult flow requirements.

This solution is recommended when dosing from a fixed chemical tank.

This system is available in 3 control options:

- **Remote**: all wiring terminated at a local junction box to allow easy integration into your process.
- **Manual**: with smart dosing pump technology, it is possible to operate this system directly at the pump without a control panel for basic continuous chemical dispensing or batching applications.
- **Local**: a control panel can be provided for local control at the system.

CHEMPACT : TO DOSE DIRECTLY FROM IBC, CARBOY DRUM OR TANK

CHEMPACT is a compact solution suitable for simple chemical dosing or dispensing applications directly out of an IBC, carboy drum or tanks.

This system typically consists of a bunded enclosure with a smart dosing pump, relief valve, suction lance and injection point.

The dosing can either be controlled locally directly at the pump or via a pulse or an analogue signal. Internal leakages can be detected by a bund switch for auto shut off.

Our compact design allows for the system to be installed in various positions to simplify your installation. For example, you can fix it on a wall near the chemical storage area, hook on to the side of an IBC or even on a pedestal directly above a carboy bund.

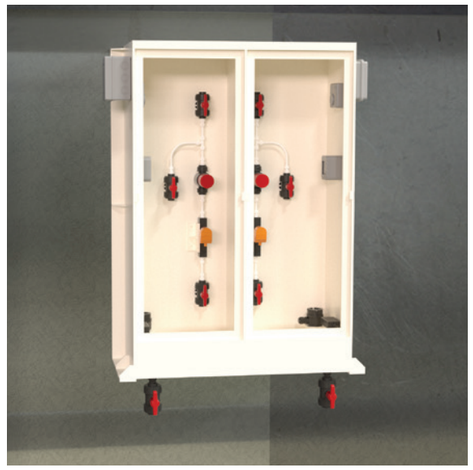
Different options are also available:

- Various pipework materials (PVC, PP. PVDF, St/St) compatable with the pumped product
- Available with either a diaphragm or peristaltic pumps upon request

CHEMPOINT : INJECTION POINT SAFETY

Dosing directly into pipework can present many challenges and risks as you can be dosing against a back pressure. This can increase the risks of splashes, increase maintenance intervals or possibly even blockages during winter.

Our lance enclosures help to reduce these risks by installing a bunded enclosure around the injection point with a bund alarm when leakage is detected. Heaters can also be installed to keep the injection point at a safe temperature. The injection lance can also be retractable for ease of maintenance.

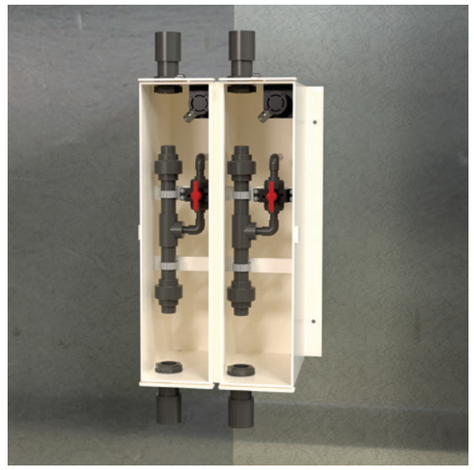


CHEMPOA : LONG-DISTANCE DOSING

When dosing long distances from your chemical tanks, PCM recommend installing a point of application enclosure.

Function and composition:

- The back-pressure valve is used to improve dosing accuracy with diaphragm pumps.
- The flow meter/switch validates the volume dosed, this helps to quickly identify any loss of chemical product.
- Our POA boxes also contain a bund level alarm.
- They can also have heating if necessary.



CHEMCATCH : SECURE YOUR PROCESS

Identifying leaks quickly on chemical lines can be one of your most important points to maintain safety and avoid an environmental hazard when dosing long distances.

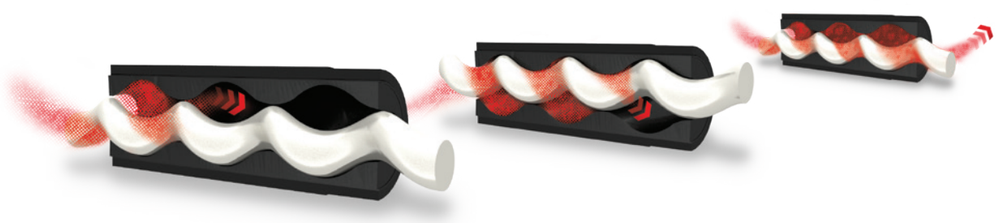
When using our catchpots in conjunction with dual contained hose technology, you can detect leakages to your chemical lines which can be caused by material breakdown due to the environment, chemical compatibility issues or damage caused by plant equipment.

Our catchpots are installed at a low-level point to allow gravity drainage into the enclosure. The outer hose contains the chemical leakage and contains it within the catchpot. The level sensor detects a rise in chemical within the enclosure allowing swift intervention to take place and avoid any risks.

PCM TECHNOLOGIES FOR YOUR BUSINESS

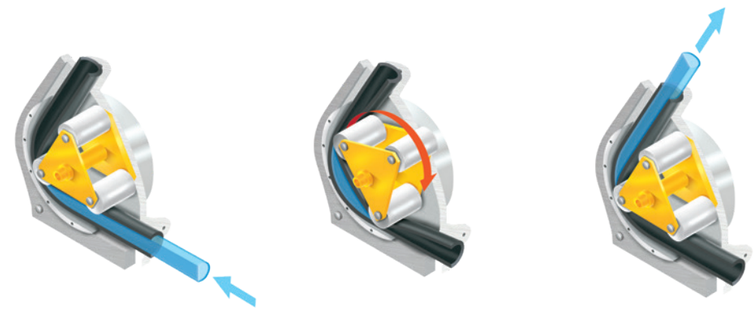
PRINCIPLE OF MOINEAU™ TECHNOLOGY

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



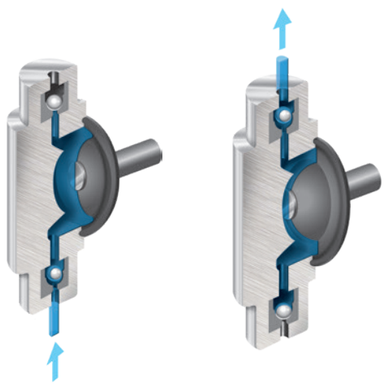
PRINCIPE OF THE PERISTALTIC PCM DELASCO™ TECHNOLOGY

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).



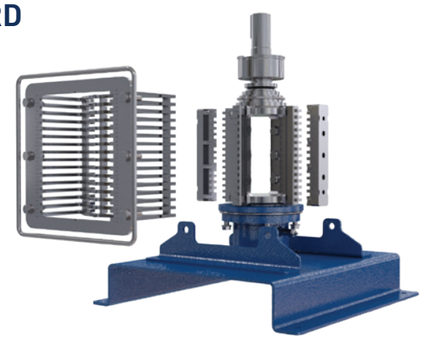
PRINCIPLE OF THE METERING PUMP LAGOA

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

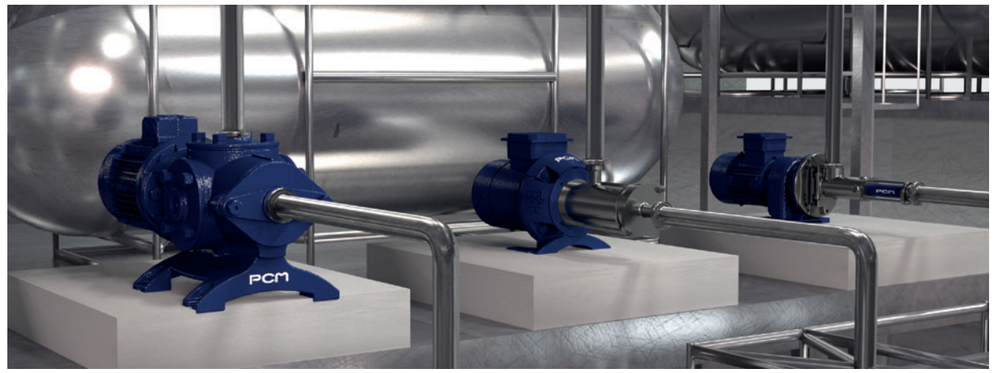


PRINCIPLE OF THE MACERATOR PCM X-GUARD

The mechanical action of the rotating knife throwing the static knife, makes the PCM Xguard the best solution to protect your equipment's. 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 duty design makes the PCM X-Guard machine a real asset in the minimization of downtime and maintenance operations.



STEP 02
DOSING PUMPS



PCM ECOMOINEAU™ MF & CF : FLOATING DOSING STATOR PUMP

PCM EcoMoineau™ progressive 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
• Flowrate : 15 à 6500 l/h • Pressure : 5 bar (10 bar – 4M12F) • Maximal temperature : 80°C • Particles size : 8 mm

CONSTRUCTION
• Cast iron body • 316 L stainless steel or chromed 100µ rotor • NBR, CR or FKM PCM stator

PCM ECOMOINEAU™ CF

PERFORMANCE
• Flowrate : 15 à 21 000 l/h • Pressure : 5 bar • Maximal temperature : 80°C • Particles size : 8 mm

CONSTRUCTION
• Stainless steel body • 316 L stainless steel rotor • NBR, CR, FKM PCM stator • Various connections

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.

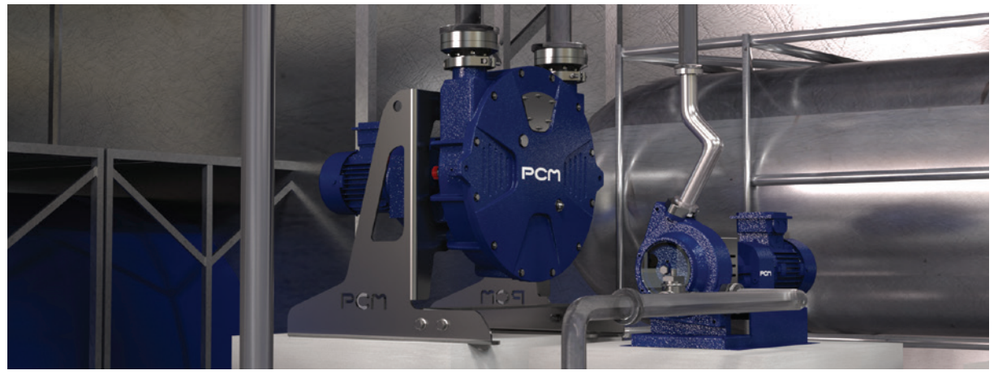
The part of the diaphragm in contact with the product is chemically inert, and the dosing heads are available in a range of materials to ensure total compatibility with different types of fluid.

The pump's capacity is adjusted by means of 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
• Flowrate : 315 l/h per dosing unit • Pressure : 12 bar • Maximal temperature : 90°C • Particles size : no particle • Dosing precision : +/- 1%	• Body : cast iron • Dosing unit in polypropylen, PVC, stainless steel or food contact stainless steel, PVDF



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
• Flowrate : from 20 to 100 000 l/h • Pressure : 15 bar • Maximal temperature : 80°C • Particles size : 33 mm

CONSTRUCTION
• Cast iron body • NR, EPDM or NBR hose • Stainless steel or polypropylene connections • Hose compression thanks to skates

PCM DELASCO™ Z

PERFORMANCE
• Flowrate : from 50 to 20 000 l/h • Pressure : 2 bar • Maximal temperature : 80°C • Particles size : 20 mm

CONSTRUCTION
• Cast iron body • CSM, EPDM, NR, CR, Silicon hose • Stainless steel or polypropylene connections • Hose compression thanks to rollers

STEP 03

TRANSFER PUMPS

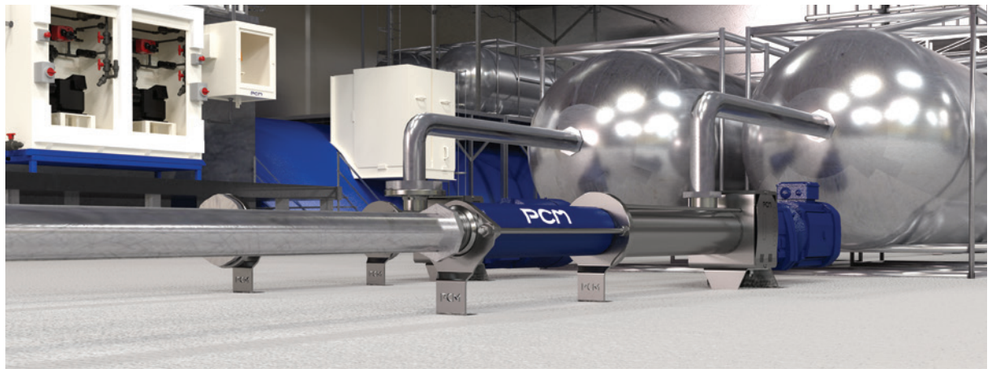
PCM ECOMOINEAU™ C : THE VERSATILE, CORROSION-RESISTANT TRANSFER PUMP

With its robust design, the PCM EcoMoineau™ C pump uses materials capable of withstanding all the challenges imposed by corrosive chemical transfer applications. In addition, it uses the variety of hydraulics developed by PCM allowing the pump's service life to be optimised according to the pumped product.

The PCM EcoMoineau™ C progressive 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
• Flowrate : 240 m3/h • Pressure : 24 bar • Maximal temperature : 110°C • Particles size : 40 mm	• 316L stainless steel body • EPDM, NBR, NBR EU-FDA, FKM, NR, IR stator • Clamp, SMS, DIN 11851, MACON, Bride ISO PN40 CLASS 150 connections • E-CTFE coated shaftline



PCM ECOMOINEAU™ LX : TO RESPECT THE CHARACTERISTICS OF THE PUMPED PRODUCT

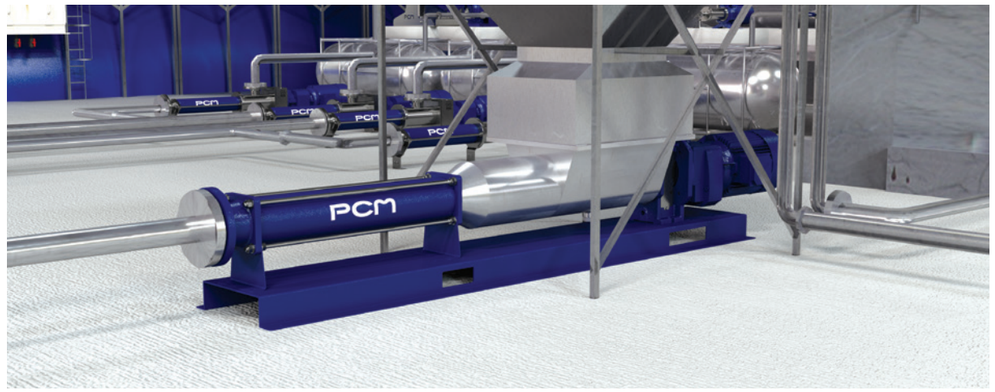
The PCM EcoMoineau™ LX pump has been designed to respect the properties of the products pumped and ensure their proper use in the rest of the process. In fact, unlike the PCM EcoMoineau™ C, it consists of a flexible connecting rod and does not use sheaths. As a result, this eliminates the risk of contamination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

What's more, the body design has no retention zones, preventing product loss and the potential expiry of products present in these areas.

The PCM EcoMoineau™ LX design therefore offers several advantages:

- Superior corrosion resistance thanks to the flexible titanium shaft line
- The total absence of wear parts prevents any risk of metal particles being dropped into the product
- No sheaths and therefore no grease or oil in the pump body, and therefore 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
• Flowrate : 240 m3/h • Pressure : 24 bar • Maximal temperature : 110°C • Particles size : 40 mm	• 316L stainless steel body • EPDM, NBR, NBR EU-FDA, FKM, NR, IR stator • CLAMP, SMS, DIN 11851, MACON, Bride ISO PN40 CLASS 150 connections • Titanium flexible shaft



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

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

Its stainless steel or carbon steel design also enables it to resist chemical attack.

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

PERFORMANCE	CONSTRUCTION
• Flowrate : 70 m3/h • Pressure: 24 bar • Maximal temperature : 110°C • Particles size : 40 mm • Maximum dryness : 18% • Maximum viscosity : 40 000 cPo	• Stainless steel or carbon steel body • Open or closed Archimede screw regarding the pumped product • EPDM, NBR, FKM, NR, IR product

IN-HOUSE FABRICATION

Located in Corby (England), our state-of-the-art in-house fabrication facilities allows us to maintain the highest quality of workmanship whilst maintaining control of the manufacturing process providing you with peace of mind when relying on our systems for safety and longevity.

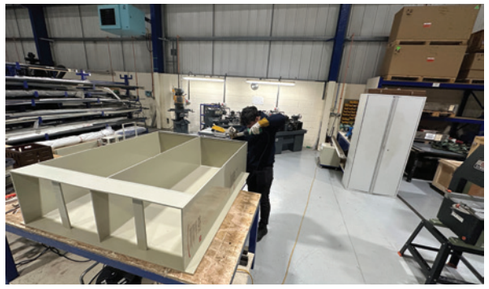
PCM
Manufacturing plant

Pilot Road, Phoenix Parkway
Corby, NN17 5YF
UNITED KINGDOM

PLASTIC ENCLOSURES

Wide range of fabrication capabilities from polypropylene to PVDF

- Standard arrangements available
- Bespoke units
- Fabricated components
    - o Pump head adaptors
    - o Covers
    - o Brackets
    - o Supports



SPECIALISTS IN PIPEWORK ASSEMBLY

- Fusion
- Welding
- Cemented
- Stainless steel welding & bending
- Stainless nut & ferrule
- Tubing.

WELDING & FINISHING

Bespoke steel fabrications to suit site requirements.

- Mild steel – epoxy painted – chemical resistant.
- Stainless steel – Polished

Integrated Enclosure baseframe.
Dedicated spraying facilities.

PCM UK SERVICES

AFTER SALES

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

PCM Group UK Ltd has a dedicated after sales support team for all chemical dosing systems. This can include yearly service agreements to maintain and extend the life of site equipment. We can also renew third party equipment where we can offer on-site refurbishments to ensure safe operation of existing equipment and minimize downtime at site.

RENTAL

We understand the importance of keeping a plant operating whilst also conducting regular service or refurbishment of existing critical equipment. We can offer hire systems to help keep your plant operating which also allows engineers to conduct their work in a safe manner if the chemical handling equipment can be taken completely offline.

TRAINING

Our experienced staff can provide on-site training for new or existing equipment 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.

systemsuk@pcm.eu
www.pcm.eu

Index A- 04/2024 - non-contractual photos