Dosing, Metering and Control Systems
Mains water or well water used for potable and industrial purposes may feature certain undesirable characteristics such as the presence of bacteria, excessive alkalinity or acidity, high hardness, presence of algae, and so forth. In these cases the water must be treated by installing equipment including dosing pumps, that act by injecting chemical products in a precise and adjustable amount. The installation, which is absolutely straightforward, is normally carried out upstream from the plant or equipment to be protected.

IDROBIOS sells an extensive range of dosing pumps for proportional or fixed dosing, in order to meet the varying requirements of single households, laboratories, or industrial plant. All the components (shown below) can be supplied both separately and assembled on specific tanks, and they are made using top quality materials in order to obtain the best possible performance and ensure constantly safe working conditions.

**Dosing Pumps - Series VCL / VMS (proportional/constant dosage)**

Electronic multifunction dosing pumps for vertical assembly with microprocessor controlled electronic flow rate adjustment.

The dosing pumps are the optimal solution for small and medium dosage of all chemicals. All operating and control parameters can be accessed via a keypad with a backlit LCD display.

Available for flow rates from 0 to 17 l/h and pressure from 1 to 10 bar in the manual and automatic bleed versions.

**Dosing Pumps - KMS Series**

The KMS MF range of chemical dosing pumps are multifunctional because they can be set up with a choice of operating modes: Constant, Divide, Multiply, ppm, %, batch, volt, mA. Functions include: setting automatic re-priming, with an installed flow sensor (self menu), enable missed strokes recovery system (self menu); set up an upkeep dosage for use during plant shut-down periods (ppm menu - upkeep setting).

The pump is equipped with:
- STAND-BY input
- SEFL input (flow sensor)
- LEVEL input (level control)
- ALARM contact output

The pump’s dosage is established by the number of pulses and single injection dispensing capacity. The operating and control parameters are shown on an LCD display and managed via a keypad.

**Accessories and Spare Parts**

- **Flow Sensor**
- **Suction Lances**
- **Agitators**
- **Chemicals**
- **Pulse trigger litre counters**

All packaged in a single solution

Linear polyethylene tanks for chemical additives

Spill containment tubs
Measurement systems and probes

Analogue control instruments, digital instruments with LCD and local or also remote programming.

<table>
<thead>
<tr>
<th>Measurement parameters</th>
<th>Application sectors</th>
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<tbody>
<tr>
<td>pH</td>
<td>For the following combinations</td>
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<tr>
<td>Redox (ORP)</td>
<td>pH/chlorine</td>
</tr>
<tr>
<td>Chlorine (total and free)</td>
<td>pH/redox</td>
</tr>
<tr>
<td>Chlorine dioxide</td>
<td>pH/Bromine</td>
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<tr>
<td>Bromine</td>
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<td>Hydrogen peroxide</td>
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<td>Conductivity</td>
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<td>Oxygen saturation</td>
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<tr>
<td>Temperature</td>
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The adjustment process for dosage control largely depends on the degree of precision, linearity and response time of the probes installed on the plant; it follows therefore that process control quality depends on the quality of the measuring instrument. Even the most sophisticated instrument is unreliable unless it is used in conjunction with probes of proven quality.

A high quality probe and regular maintenance are essential requirements to obtain a reliable dosage control system.

Measurement parameters such as pH, Redox, conductivity, chlorine, and turbidity are decisive for correct upkeep of the plant to be managed, especially in cooling towers, reverse osmosis systems, and the fertigation sector.

Water treatment for cooling towers

Electrically and hydraulically pre-assembled panel (Moplen), controlled by a specific instrument for system management.

Installed on a by-pass circuit of the cooling tower delivery pump, the unit continuously measures water conductivity and suspends dosage, opening a servo controlled valve for automatic bleeding, when the preset value is exceeded.

This makes it possible to maintain maximum efficiency of the cooling towers system.

The analysed water can be returned directly to the tower or discarded to drain.

The system shown in the figure on the right (ANTI-LEGIONELLA), in the recirculation water line prevents and controls the development of dangerous pathogens such as gram-negative aerobic legionella bacteria.

Equipped with GSM modem for mobile networks.
Polyphosphate dispensers

- **Systems for polyphosphate powder**

These dosing systems, which are used to prevent the accumulation of lime scale and corrosion inside pipes, can be installed upstream from boilers, water heaters, washing machines and dishwashers.

Operation is based on automatic and proportional dosing of polyphosphate chelating agents capable of preventing the deposition of calcium carbonate, removing scale and forming an anti-corrosive protective film on the inner walls of pipes.

Installation on horizontal, vertical and angled pipes.

The AQUASTOP (By-Pass) device allows the system to be excluded from the line to refilling of the bowl with polyphosphates.

- **Accessories**

PVC service wrench  Replacement polyphosphate powder cartridges

- **Systems for polyphosphate crystals**

Composed of filters containing low solubility granular polyphosphate salts (trisodium phosphate). The untreated water flows through the layer of salts longitudinally from top to bottom, dissolving a small quantity and then rising through a central diffuser tube from where it flows to the user service enriched with approximately 2 - 3 mg/l (2 - 3 g/m³) of dissolved polyphosphates.

Polyphosphates dissolved in water destined for a subsequent heating process perform a dual action:

**ANTI-SCALE** in that they prevent the precipitation of insoluble carbonates of calcium and magnesium bicarbonates dissolved in the water.

**ANTI-CORROSION** by coating inner pipe walls with a thin protective film that prevents contact with oxygen or carbon dioxide, which are the main causes of corrosion. Moreover, over time these additives tend to clear previously accumulated lime scale from pipelines and water heaters. The effects described above are enhanced when the water pH value is between 6 and 7.

Available for flow rates from 1,200 to 10,000 l/h.

**NOTE:** The de-scaling action of polyphosphates decreases gradually as the treated water is brought to temperatures above 80°C and is suspended completely at around 100°C.

- **Accessories**

PVC service wrench  Fine polyphosphate crystals  Coarse polyphosphate crystals

Direct reading flow meters

**“R” series flow meters**

Made entirely of Plexiglas with orifice machined directly in the structure. The guided or unrestrained float valve is available in various materials: AISI 316, PVC, PTFE, Moplen.

**Tee fitting and in-line flow meters**

Diaphragm type partial flow “T” series flow meters are suitable for monitoring high flow rates. The use of suitable anti-corrosion materials makes it possible to install these flow meters in applications involving chemically aggressive liquids.

Compatible with installation on vertical or horizontal pipes with upward, downward, left to right or right to left flow.

In compliance with UNI EN 12845 firefighting unit applications.