The F series includes 12 models with a conventional motor or a frequency inverter incorporated into the terminal box so that it can be successfully integrated into processes including fixed or variable flow-rates.

**Characteristics**
- Maximum flow-rate: 3400 l/h
- Maximum pressure: 10 bar
- Maximum continuous operating temperature: 80 °C
- Sterilisation temperature stationary: 140 °C
- Cubic capacity: 1.26 to 37 cm³
- Running speed: 240 to 1600 rpm

**Operation**
A Moineau pump is made up of a helical rotor turning inside a helical stator. The stainless steel rotor is machined to a high degree of precision, and the stator is molded in a resilient elastomer. The geometry and the dimensions of these parts are such that when the rotor is inserted into the stator, a double chain of watertight (honeycomb-shaped) cavities is created. 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 intake to the pump discharge.

The F Series pump has the special feature of discharging on the drive side. Therefore, the outlet pressure enables the pumped fluid to compress the floating stator against the rotor and ensure gradual tightening during pressure increases.

**Benefits of the Moineau technology:**
- Pump derived directly from the invention by René Moineau, founder of PCM
- Gentle handling of products
- High suction and self-priming capability
- Constant non-pulsing flow-rate
- Ease of maintenance
- Flowrate proportional to running speed
- Operation without valves

**Benefits of the F series Moineau pump:**
- Compact size
- Highly simplified drive line without pinjoints
- Very quiet operation
- Simple and rugged cast iron construction
- Particularly easy to maintain
- Versatile

**Drive**
Drive by standard flange-mounted motor or flange-mounted variable speed motor with an integral frequency inverter with IP55 protection, tropicalized to 90%, class F.

**Elastic coupling**
The traditional drive shaft of the Moineau pump is replaced by a natural rubber or nitrile elastic coupling connecting the drive shaft and the rotor in their rotation. Its flexibility enables it to take up the eccentric movement between the rotor and stator.

**Mechanical seal**
Shaft tightness is ensured by a simple carbon/stainless steel mechanical seal or, optionally, silicon carbide/tungsten carbide.

**Adjusting knob**
The pump speed is adjusted directly by a large ergonomic and graduated potentiometer.

**Terminal box**
Aluminium terminal box with electronic circuit encapsulated in resin and a brass stuffing box to ensure high mechanical resistance to vibration and insensitivity to humidity. An overload indicator, particularly useful at start-up, warns the user of incorrect pump operation, e.g. in the case of overcurrent.
**Compact Progressive-Cavity Pumps**

**F Series Construction**

- **Drive shaft**: The drive shaft is of stainless steel: Z20 C13 (1) or Z2 CND 17-12 (2) if necessary chrome-plated, and floating stator with 1 stage (3) of nitrile, hypalon, viton or neoprene.

- **Floating rotor-stator**: Rotor in stainless steel Z20 C13 (1) or Z2 CND 17-12 (2) if necessary chrome-plated, and floating stator with 1 stage (3) of nitrile, hypalon, viton or neoprene.

- **Suction**: Cast iron body

---

**Applicable directives and standards**

The F series pumps meet the machine directive requirements and its harmonised standards.

**Optional equipment**

- **By-pass and/or safety valve**: To avoid any risks of pump damage in the event of overpressure, it is advisable to protect it with a recirculating by-pass system equipped with a safety valve whose calibration pressure can be set according to the pump discharge pressure.

- **Dry running protection**: Placed on the suction side, this system ensures that there is product at the inlet of the pump so as to prevent any inadvertent dry operation, which could cause deterioration of the stator or a stop of the process flow.

- **Pressure sensor**: To better control your process, the installation of a pressure sensor (pressure gauge, pressure switch or analogue sensor) on the pump discharge side is highly recommended. PCM offers a full range of accessories designed to improve the process operating conditions.

- **Automatic level, flow-rate and pressure controls**

**Electrical and functional specifications for the MV-F version**

- **Power range from 0.37 to 1.5 kW**
- **Speed variation range: 1 to 7 (12 to 82 Hz)**
- **Power supply network: three-phase 400 V +/- 10%**
- **Power supply frequency: 50/60Hz +/- 5%**
- **Operation from –10 °C to +40 °C**
- **Starting and stopping by acceleration ramp.**
- **No adjustment necessary.**
- **Starting and stopping: either directly by 400V three-phase power supply or by remote contact or by local switch.**
- **Speed variation: either by local adjusting knob or by 0-10V external setpoint (standard), or by 4-20 mA signal (option).**
- **Protection: self-protection against under-voltages, over-voltages and short-circuits at the 0/10V inputs and outputs.**
- **Electrical construction: IP55 protection, 90% tropicalized, class F, sheet metal fan cover**

**Options on terminal box**

- **On-off control.**
- **RFI filter to prevent electromagnetic interference.**
- **4-20 mA setpoint for remote control.**
- **Display for remote reading.**
Understanding model designation

**Motor (M) or variable speed motor (MV)**

**Flowrate in l/h at 0 bar & 1450 rpm**

**Max pressure in bar**

**Performance**

The running speeds and pressures indicated on these curves correspond to basic performance levels attained with water at a temperature of 20°C and a 0 bar discharge pressure.

If service conditions differ from this standard, it will be necessary to limit performance according to:

- The characteristics of the product (viscosity, fragility, abrasiveness).
- The application characteristics (operating configuration, discharge pressure, NPSH available).

<table>
<thead>
<tr>
<th>Model</th>
<th>Motor</th>
<th>Flowrate at 0 bar (l/h)</th>
<th>Flowrate at P max. (l/h)</th>
<th>Max pressure (bar)</th>
<th>Speed (rpm)</th>
<th>Motor power (kW)</th>
<th>Phases &amp; Voltage (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M110F4</td>
<td>80L</td>
<td>45</td>
<td>20</td>
<td>4</td>
<td>750</td>
<td>0,25</td>
<td>3P 230/400</td>
</tr>
<tr>
<td>M110F4</td>
<td>80L</td>
<td>65</td>
<td>35</td>
<td>4</td>
<td>1000</td>
<td>0,25</td>
<td>3P 230/400</td>
</tr>
<tr>
<td>M110F4</td>
<td>71L</td>
<td>95</td>
<td>65</td>
<td>4</td>
<td>1500</td>
<td>0,37</td>
<td>3P 230/400</td>
</tr>
<tr>
<td>M110F4</td>
<td>80L</td>
<td>95</td>
<td>65</td>
<td>4</td>
<td>1500</td>
<td>0,55</td>
<td>3P 230</td>
</tr>
<tr>
<td>M750F4</td>
<td>80L</td>
<td>385</td>
<td>275</td>
<td>4</td>
<td>750</td>
<td>0,25</td>
<td>3P 230/400</td>
</tr>
<tr>
<td>M750F4</td>
<td>80L</td>
<td>400</td>
<td>390</td>
<td>4</td>
<td>1000</td>
<td>0,25</td>
<td>3P 230/400</td>
</tr>
<tr>
<td>M750F4</td>
<td>71L</td>
<td>745</td>
<td>615</td>
<td>4</td>
<td>1500</td>
<td>0,37</td>
<td>3P 230/400</td>
</tr>
<tr>
<td>M750F4</td>
<td>80L</td>
<td>745</td>
<td>615</td>
<td>4</td>
<td>1500</td>
<td>0,55</td>
<td>3P 230</td>
</tr>
<tr>
<td>M750F4</td>
<td>80L</td>
<td>870</td>
<td>460</td>
<td>4</td>
<td>1000</td>
<td>0,25</td>
<td>3P 230/400</td>
</tr>
<tr>
<td>M750F4</td>
<td>80L</td>
<td>1100</td>
<td>840</td>
<td>4</td>
<td>750</td>
<td>0,25</td>
<td>3P 230/400</td>
</tr>
<tr>
<td>M1200F4</td>
<td>80L</td>
<td>1305</td>
<td>540</td>
<td>4</td>
<td>1500</td>
<td>0,37</td>
<td>3P 230/400</td>
</tr>
<tr>
<td>M1200F4</td>
<td>80L</td>
<td>1305</td>
<td>540</td>
<td>4</td>
<td>1500</td>
<td>0,55</td>
<td>3P 230</td>
</tr>
<tr>
<td>M2200F4</td>
<td>80L</td>
<td>1480</td>
<td>1130</td>
<td>4</td>
<td>1000</td>
<td>0,25</td>
<td>3P 230/400</td>
</tr>
<tr>
<td>M2200F4</td>
<td>80L</td>
<td>2170</td>
<td>1370</td>
<td>4</td>
<td>1000</td>
<td>0,55</td>
<td>3P 230/400</td>
</tr>
<tr>
<td>M2200F4</td>
<td>71L</td>
<td>2220</td>
<td>1660</td>
<td>4</td>
<td>1500</td>
<td>0,37</td>
<td>3P 230</td>
</tr>
<tr>
<td>M1200F4</td>
<td>80L</td>
<td>2220</td>
<td>1660</td>
<td>4</td>
<td>1500</td>
<td>0,55</td>
<td>3P 230</td>
</tr>
<tr>
<td>M3400F4</td>
<td>80L</td>
<td>3300</td>
<td>2460</td>
<td>4</td>
<td>1500</td>
<td>0,75</td>
<td>3P 230</td>
</tr>
<tr>
<td>M3400F4</td>
<td>80L</td>
<td>3300</td>
<td>2460</td>
<td>4</td>
<td>1500</td>
<td>0,75</td>
<td>3P 230/400</td>
</tr>
<tr>
<td>M3400F4</td>
<td>90L</td>
<td>3330</td>
<td>2000</td>
<td>10</td>
<td>1500</td>
<td>1,5</td>
<td>3P 230/400</td>
</tr>
<tr>
<td>MV110F4</td>
<td>80LVMA</td>
<td>10/105</td>
<td>-/75*</td>
<td>4</td>
<td>250/1600</td>
<td>0,37</td>
<td>3P 400</td>
</tr>
<tr>
<td>MV750F4</td>
<td>80LVMA</td>
<td>130/795</td>
<td>55/660</td>
<td>4</td>
<td>250/1600</td>
<td>0,37</td>
<td>3P 400</td>
</tr>
<tr>
<td>MV1200F4</td>
<td>80LVMA</td>
<td>260/1380</td>
<td>160/1080</td>
<td>4</td>
<td>250/1600</td>
<td>0,37</td>
<td>3P 400</td>
</tr>
<tr>
<td>MV2200F4</td>
<td>80LVMA</td>
<td>340/2360</td>
<td>240/1770</td>
<td>4</td>
<td>250/1600</td>
<td>0,37</td>
<td>3P 400</td>
</tr>
<tr>
<td>MV3400F4</td>
<td>100LVMA</td>
<td>540/3750</td>
<td>-/2350*</td>
<td>10</td>
<td>250/1600</td>
<td>1,5</td>
<td>3P 400</td>
</tr>
<tr>
<td>MV3400F4</td>
<td>90SVMA</td>
<td>540/4000</td>
<td>-/2670*</td>
<td>4</td>
<td>250/1600</td>
<td>0,75</td>
<td>3P 400</td>
</tr>
</tbody>
</table>

* No flow at N min for Pmax.

---

**Model**

- 3400F4
- 3400F4
- 2200F4
- 2000F4
- 750F4
- 110F4

**Flowrate in l/h**

- 0 to 250
- 250 to 500
- 500 to 1000
- 1000 to 1500

**Motor (M) or variable speed motor (MV)**

**Motor power (kW)**

- 0.25
- 0.37
- 0.55
- 0.75
- 1.5

**Phases & Voltage (V)**

- 3P 230/400
- 3P 230/400
- 3P 230/400
- 3P 230/400
- 3P 230/400
- 3P 400
## Sizes F Series

### Cast iron body

![Diagram of a Cast iron body]

<table>
<thead>
<tr>
<th>Model</th>
<th>Motor</th>
<th>C3</th>
<th>DN1</th>
<th>DN2</th>
<th>D3</th>
<th>H1</th>
<th>H2</th>
<th>H3</th>
<th>H4</th>
<th>I</th>
<th>L</th>
<th>MV</th>
<th>N1</th>
<th>P</th>
<th>P2</th>
<th>P3</th>
<th>S4</th>
<th>Kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>M110F4</td>
<td>7IL</td>
<td>112</td>
<td>G3/4&quot;F</td>
<td>G1&quot;F</td>
<td>G3/8&quot;F</td>
<td>81</td>
<td>62</td>
<td>102</td>
<td>71</td>
<td>19013</td>
<td>464</td>
<td>126</td>
<td>104</td>
<td>70</td>
<td>256</td>
<td>90</td>
<td>7</td>
<td>22</td>
</tr>
<tr>
<td>M110F4</td>
<td>8OL</td>
<td>125</td>
<td>G3/4&quot;F</td>
<td>G1&quot;F</td>
<td>G3/8&quot;F</td>
<td>90</td>
<td>62</td>
<td>122</td>
<td>80</td>
<td>19013</td>
<td>506</td>
<td>157</td>
<td>120</td>
<td>70</td>
<td>271</td>
<td>100</td>
<td>9</td>
<td>25</td>
</tr>
<tr>
<td>MV110F4</td>
<td>80LVA</td>
<td>125</td>
<td>G3/4&quot;F</td>
<td>G1&quot;F</td>
<td>G3/8&quot;F</td>
<td>90</td>
<td>62</td>
<td>205</td>
<td>80</td>
<td>19013</td>
<td>506</td>
<td>157</td>
<td>120</td>
<td>70</td>
<td>271</td>
<td>100</td>
<td>9</td>
<td>28</td>
</tr>
<tr>
<td>M750F4</td>
<td>7IL</td>
<td>112</td>
<td>G3/4&quot;F</td>
<td>G1&quot;F</td>
<td>G3/8&quot;F</td>
<td>81</td>
<td>62</td>
<td>102</td>
<td>71</td>
<td>19013</td>
<td>464</td>
<td>126</td>
<td>104</td>
<td>70</td>
<td>256</td>
<td>90</td>
<td>7</td>
<td>22</td>
</tr>
<tr>
<td>M750F4</td>
<td>80L</td>
<td>125</td>
<td>G3/4&quot;F</td>
<td>G1&quot;F</td>
<td>G3/8&quot;F</td>
<td>90</td>
<td>62</td>
<td>122</td>
<td>80</td>
<td>19013</td>
<td>506</td>
<td>157</td>
<td>120</td>
<td>70</td>
<td>271</td>
<td>100</td>
<td>9</td>
<td>25</td>
</tr>
<tr>
<td>MV750F4</td>
<td>80LVA</td>
<td>125</td>
<td>G3/4&quot;F</td>
<td>G1&quot;F</td>
<td>G3/8&quot;F</td>
<td>90</td>
<td>62</td>
<td>205</td>
<td>80</td>
<td>19013</td>
<td>506</td>
<td>157</td>
<td>120</td>
<td>70</td>
<td>271</td>
<td>100</td>
<td>9</td>
<td>28</td>
</tr>
<tr>
<td>M1200F4</td>
<td>7IL</td>
<td>112</td>
<td>G3/4&quot;F</td>
<td>G1&quot;F</td>
<td>G3/8&quot;F</td>
<td>81</td>
<td>62</td>
<td>102</td>
<td>71</td>
<td>19013</td>
<td>464</td>
<td>126</td>
<td>104</td>
<td>70</td>
<td>256</td>
<td>90</td>
<td>7</td>
<td>22</td>
</tr>
<tr>
<td>M1200F4</td>
<td>80L</td>
<td>125</td>
<td>G3/4&quot;F</td>
<td>G1&quot;F</td>
<td>G3/8&quot;F</td>
<td>90</td>
<td>62</td>
<td>122</td>
<td>80</td>
<td>19013</td>
<td>506</td>
<td>157</td>
<td>120</td>
<td>70</td>
<td>271</td>
<td>100</td>
<td>9</td>
<td>25</td>
</tr>
<tr>
<td>MV1200F4</td>
<td>80LVA</td>
<td>125</td>
<td>G3/4&quot;F</td>
<td>G1&quot;F</td>
<td>G3/8&quot;F</td>
<td>90</td>
<td>62</td>
<td>205</td>
<td>80</td>
<td>19013</td>
<td>506</td>
<td>157</td>
<td>120</td>
<td>70</td>
<td>271</td>
<td>100</td>
<td>9</td>
<td>28</td>
</tr>
<tr>
<td>M2200F4</td>
<td>7IL</td>
<td>112</td>
<td>G3/4&quot;F</td>
<td>G1&quot;F</td>
<td>G3/8&quot;F</td>
<td>81</td>
<td>62</td>
<td>102</td>
<td>71</td>
<td>19013</td>
<td>464</td>
<td>126</td>
<td>104</td>
<td>70</td>
<td>256</td>
<td>90</td>
<td>7</td>
<td>22</td>
</tr>
<tr>
<td>M2200F4</td>
<td>80L</td>
<td>125</td>
<td>G3/4&quot;F</td>
<td>G1&quot;F</td>
<td>G3/8&quot;F</td>
<td>90</td>
<td>62</td>
<td>122</td>
<td>80</td>
<td>19013</td>
<td>506</td>
<td>157</td>
<td>120</td>
<td>70</td>
<td>271</td>
<td>100</td>
<td>9</td>
<td>25</td>
</tr>
<tr>
<td>MV2200F4</td>
<td>80LVA</td>
<td>125</td>
<td>G3/4&quot;F</td>
<td>G1&quot;F</td>
<td>G3/8&quot;F</td>
<td>90</td>
<td>62</td>
<td>205</td>
<td>80</td>
<td>19013</td>
<td>506</td>
<td>157</td>
<td>120</td>
<td>70</td>
<td>271</td>
<td>100</td>
<td>9</td>
<td>28</td>
</tr>
<tr>
<td>M3400F4</td>
<td>80L</td>
<td>125</td>
<td>G1&quot;F</td>
<td>G1&quot;1/4&quot;F</td>
<td>G3&quot;4&quot;F</td>
<td>95</td>
<td>62</td>
<td>122</td>
<td>80</td>
<td>23813</td>
<td>562</td>
<td>157</td>
<td>120</td>
<td>80</td>
<td>317</td>
<td>100</td>
<td>9</td>
<td>28</td>
</tr>
<tr>
<td>MV3400F4</td>
<td>90LVA</td>
<td>140</td>
<td>G1&quot;F</td>
<td>G1&quot;1/4&quot;F</td>
<td>G3&quot;4&quot;F</td>
<td>105</td>
<td>62</td>
<td>215</td>
<td>90</td>
<td>23813</td>
<td>585</td>
<td>172</td>
<td>120</td>
<td>80</td>
<td>343</td>
<td>100</td>
<td>10</td>
<td>38</td>
</tr>
<tr>
<td>MV3400F10</td>
<td>90L</td>
<td>156</td>
<td>G1&quot;1/2&quot;F</td>
<td>G1&quot;1/2&quot;F</td>
<td>G3&quot;4&quot;F</td>
<td>112</td>
<td>68</td>
<td>133</td>
<td>90</td>
<td>24313</td>
<td>643</td>
<td>172</td>
<td>162</td>
<td>85</td>
<td>369</td>
<td>125</td>
<td>11</td>
<td>43</td>
</tr>
<tr>
<td>MV3400F10</td>
<td>100LVA</td>
<td>160</td>
<td>G1&quot;1/2&quot;F</td>
<td>G1&quot;1/2&quot;F</td>
<td>G3&quot;4&quot;F</td>
<td>122</td>
<td>68</td>
<td>220</td>
<td>100</td>
<td>24313</td>
<td>688</td>
<td>196</td>
<td>165</td>
<td>85</td>
<td>376</td>
<td>140</td>
<td>12</td>
<td>52</td>
</tr>
</tbody>
</table>

Sizes in mm
In many cases, the F series Moineau pump can be used as a dosing pump. It is an advantageous replacement for traditional dosing units for highly viscous, articulate or abrasive products. It is compact and rugged, making it particularly suitable for machine or system integration.

M2200F4 pump for feeding salty water jets in a salty rain and spray simulation installation for high voltage insulator tests.

Three MV1200F4 pumps with cast iron bodies from a set of 7 waste water treatment plant polymer dosing pumps. These pumps ensure injection proportional to a sludge flow into a dewatering unit with a centrifugal decanter.

### Activity sector

<table>
<thead>
<tr>
<th>Water treatment</th>
<th>Industry</th>
<th>Mechanical</th>
<th>Chemicals and energy</th>
</tr>
</thead>
</table>

### Products transferred or dosed with PCM Moineau F series pumps

<table>
<thead>
<tr>
<th>Products transferred or dosed</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rocculants in waste water treatment plant, deionized water. Polyelectrolytes and various polymers.</td>
<td></td>
</tr>
<tr>
<td>Dosing of additives, Draining of retention tanks, etc…</td>
<td></td>
</tr>
<tr>
<td>Machine coolant, oil and cutting oil. Used oils (drainage, machine tool effluents)</td>
<td></td>
</tr>
<tr>
<td>Detergent products (detergents, surfactants, sodium hydroxide…) Dyes and inks, phytosanitary products (fungicides, liquid fertilisers) Starch, acrylic glues. Hydrocarbons, domestic and heavy fuel oils (boiler supply). Emulsions (water/oil, water/soap…) Water-based paint, plasticizers, urea/formol resins</td>
<td></td>
</tr>
</tbody>
</table>

This table is not exhaustive but refers to the most general applications. Obviously, there are many more in different fields.
Services

PCM is constantly striving to work closer with its partners by responding to its customers’ needs and offering quality service. All the aspects of LCC are taken into account to provide a better quality product and improve performance.

Equipment repair and overhaul…
Speed and efficiency. Our technical assistance staff undertake repairs to pumps and regularly overhaul equipment which is already installed.

Maintenance Contract…
PCM offer maintenance contracts drawn up to suit the requirements and operating conditions of each production unit.

Spare parts…
Unbeatable delivery. PCM hold a permanent stock of spare parts and accessories so that they can respond to all urgent enquiries.

Technical assistance…
PCM recommend that their customers take out a maintenance contract to ensure that their pumps provide optimum performance. PCM’s technical assistance staff regularly visit installations to perform preventive or corrective maintenance.

Training…
PCM offer a two-day training course designed to give maintenance personnel a thorough understanding of how to use and maintain positive displacement pumps.

Pumpexpress…
Availability and reactivity. Complete pumps are available for delivery at any time. This new service allows PCM to meet urgent requests for equipment.

PCM’s range of products includes:

- **PCM MOINEAU**: The widest range of progressive cavity pumps
- **PCM DELASCO**: A complete range of adaptable multi-purpose peristaltic pumps
- **PCM PROCESS**: Feeding and filling systems
- **PCM DOSYS**: Precision dosing and continuous blending systems
- **PCM PRÉCI-POMPE**: Electro-mechanical diaphragm and piston dosing pumps
- **PCM EQUIPEMENT**: Pipeliner-grinders
- **PCM MOINEAU OILFIELD**: Progressive cavity pumps for crude oil extraction