The FPL model high-pressure mixing head offers many significant advantages in terms of quality, performance, productivity and environmental impact, such as:

- homogenous mixing ensured by high-velocity impingement of components leaving the jets
- self-cleaning head: solvents are no longer required for head cleaning operations
- high repeatability of the pouring weight with pouring times less than 0.5 sec.
- manual or automatic regulation of the pouring pressure
- laminar flow granted also in case of open mould pouring.

The FPL/3 version is designed for all the applications requiring mixing of a third component. Basically, this additional component is metered directly into the mixing chamber by using the hole normally utilised for colour injection.

Making the most of the high kinetic energy in the mixing chamber, already generated by the high pressure injection of the other components, the third chemical is generally dosed at a very low output.

### Cannon FPL range

reliability, compactness and high performances.

### Cannon FPL working sequence.

Cannon FPL/3 working sequence.

### Cannon FPL/3 working sequence.

### The Art of Mixing - The Core of a Polyurethane System!

Cannon offers a wide range of high and low-pressure mixing heads for polyurethane foaming, able to meet the different production and technical requirements of a great variety of applications, types of formulation, levels of output:

- from 0.20 g/s for micro-shot pouring
- up to 10,000 g/s used for fast-reacting polyurea systems
- from 2 up to 6 components mixed simultaneously.

### Poor Mixing

Efficient Mixing

<table>
<thead>
<tr>
<th>Component</th>
<th>FPL 7</th>
<th>FPL 10</th>
<th>FPL 14</th>
<th>FPL 18</th>
<th>FPL 24</th>
<th>FPL 32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min Recommended</td>
<td>10</td>
<td>10</td>
<td>25</td>
<td>25</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>Max Laminar Flow</td>
<td>70 (T.O.)</td>
<td>150 (T.O.)</td>
<td>300 (T.O.)</td>
<td>400 (T.O.)</td>
<td>700 (T.O.)</td>
<td>1850 (T.O.)</td>
</tr>
<tr>
<td>Max Recommended</td>
<td>45</td>
<td>45</td>
<td>130</td>
<td>130</td>
<td>300</td>
<td>300</td>
</tr>
</tbody>
</table>

All values are calculated in cc/s, considering a component viscosity < 1000 cps.
Where not different specified, all values are considered for each single stream output (T.O. = Total Output)
Cannon's FP2L series can be considered as the first evolutionary step of the FPL range towards the idea of a multi-component head.

Basically, by connecting an additional mixing chamber mounted symmetrically to the existing one in a standard FPL head, it is possible to obtain a new double mixing chamber configuration.

This solution grants two important advantages: a higher production flexibility (unachievable using one only mixing head) and a significant increase of the plant productivity.

Being each chamber independent, the mixing head can be fed by two different formulations that can be used alternatively for the production of foamed parts having different characteristics or for the pouring of different materials in the same mould at a fast sequence.

The model **FP2L 32** is the "L" shape high pressure mixing head ever manufactured by Cannon, able to produce foamed parts from just a few hundred grams up to more than ten kilos.

### FP2L series
A complete range of models dedicated to multi-component and dual-hardness applications for seating and flexible paddings.

### FP2L working sequence.

#### Cannon FP2L working sequence.

<table>
<thead>
<tr>
<th>Component</th>
<th>FP2L 14</th>
<th>FP2L 22</th>
<th>FP2L 32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min Recommended</td>
<td>A</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td>Max Laminar Flow</td>
<td>300 (T.O.)</td>
<td>550 (T.O.)</td>
<td>1850 (T.O.)</td>
</tr>
<tr>
<td>Max Recommended</td>
<td>250</td>
<td>350</td>
<td>600</td>
</tr>
</tbody>
</table>

All values are calculated in cc/s, considering a component viscosity < 1000 cps.

Where not different specified, all values are considered for each single stream output (T.O. = Total Output)
The Cannon "AX" is the most advanced multi-component foaming head, specifically developed for the production of hot and cold cure flexible foams.

The AX mix-head is designed to manage and process up to six components simultaneously and in different combinations, including water-based additives and low-viscosity TDI-based isocyanates.

The AX offers a unique feature: TDI based isocyanates and low viscosity components (water, silicon, catalysts, etc.) can be injected axially at lower pressures, minimising the risk of leakage in the dosing circuit and the need for complex and expensive maintenance to the dosing pump.
The LN range has been specifically developed with a straight-through mixing chamber.

The hydraulics and mechanics used are simple making this head cost-effective and easily managed and maintained.

For foaming inside closed panels only, another filling system is also available based on a dedicated head characterised by an extremely flat design.

Conversely, Cannon LN5 is a compact and extremely lightweight version of the LN, with an ergonomic handle for an easy handling.

This model is dedicated to spray and cavity-filling applications where low/medium outputs, space saving and simple accessibility to the parts are of the essence.

For cavity filling, the LN5 is able to insulate portable coolers, flasks, small containers and low-density rigid moulded products (i.e. small panels and small boxed cavities for cars).

All values are calculated in cc/s, considering a component viscosity < 1000 cps.
The Cannon **Trio** series is recommended for moulding processes where pre-blended filled formulations are used, even at high outputs. This mix-head is **equipped with three independent injectors** mounted at an angle of 120° to each other, eliminating the problems traditionally generated by the difference in output pressure and viscosity.

The main developing concept applied to **Trio** heads is to use the third available stream to split the feeding of the higher viscosity component (usually the filled one) into two streams in order to improve mixing efficiency.

The short piston stroke configuration ensures repeatability and precision of injection, offering high quality mouldings even with highly reactive formulations.

The Cannon **InterWet** mixing head model has been developed for the co-injection of polyurethane and solid fillers (powders or glass fibres) and it is able to mold composite materials with particular physical-mechanical properties.

The innovative and original technological aspect lies in the dosing and mixing of fillers directly into the head. The co-injection process ensures a homogeneous dispersion of the filler inside the polyurethane foam.

The **InterWet** mixing head is equipped with a glass-fibre chopper unit and it is provided with a dedicated system for monitoring every single production step (filler feeding, fibre glass cutting, co-injection and mixing phases of solid and liquid components), to ensure precise dosing, constant ratio and output and the possibility to change the filler quantity independently, shot by shot, during the pouring process.

**InterWet** mixing head is also available to meter and pour powders. This version foresees a different feeding system configuration where the material is already powdered or in a granulated form before reaching the head.

The Cannon **Z** is a high-pressure head specifically designed for pipe-in-pipe insulation. Most of the piping service lines are for district heating networks and water, oil and gas distribution.

The **Z** head has an extremely compact and slim design (the head's thickness is less than 25!) with a curved shape, making it particularly suitable for continuous production lines.

Mounted on a special device, the Cannon **Z** mixing head can be directly introduced between the two coaxial pipes.
For low-pressure technology as well, Cannon offers a wide and complete range of reliable heads, to satisfy and meet the most severe technical requirements and production needs: general purpose applications, micro-shots and very low outputs, very high outputs and multi-component.

All Cannon low pressure heads can be equipped with a large variety of mixers having different shapes and designs, able to run at different speeds to give homogeneous mixing, regardless of formulations, satisfying the most complex mouldings needs.

Potting for Electrical Insulation

The Potting technology is dedicated to the encapsulation of electronic/electrical devices and components in order to ensure complete environmental protection of circuits from moisture and chemical attack.

For this specific application, Cannon has developed a new dedicated low pressure mixing head for micro-shots with very low outputs, able to mix and meter both polyurethane or epoxy resin, using formulations with a wide working ratio (up to 10:1), high viscosity components and very small outputs (min output 0.20 g/s, max output 1.5 g/s).

Micro-Shots for Gaskets and Sealants

The electrical, automotive, appliance, filter and packaging industries are some of the most important users of foaming processes where micro-shots with very low outputs are required. They must respond to ever-growing market demands, which means that they need to maintain high levels of productivity and quality at low costs.

Cannon has developed multi-component low-pressure mixing heads specifically designed for micro-shot pouring and able to cover very low output ranges: from 0.2 to 30 g/s.

The standard low-pressure mix-head range for general purpose applications is completed by a number of dedicated versions developed for specific production niches, requiring metering and mixing of not only polyurethane formulations, but also silicones, elastomers and epoxy resins with different chemical and physical properties.