### Standard units

<table>
<thead>
<tr>
<th>Units</th>
<th>Type of distillation</th>
<th>Pressure</th>
<th>Stirring</th>
<th>Raw material</th>
<th>Accessories</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>202</td>
<td>Hydrodistillation</td>
<td>Atmospheric pressure</td>
<td>✓</td>
<td>Crushed plants, seeds, etc.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>206</td>
<td>Direct steam injection</td>
<td>Atmospheric pressure</td>
<td>-</td>
<td>Bulk plants</td>
<td>Gravity-assisted cohobation</td>
<td>Economical</td>
</tr>
<tr>
<td>208</td>
<td>Hydrodistillation</td>
<td>Atmospheric pressure</td>
<td>-</td>
<td>Rose and orange blossoms</td>
<td>Recovery of hydrosol</td>
<td>Dedicated solution</td>
</tr>
<tr>
<td>254</td>
<td>Hydrodistillation</td>
<td>Pressurized (2.5 bars)</td>
<td>✓</td>
<td>Crushed plants, seeds, etc.</td>
<td>Cohobage par pompe</td>
<td>Energy savings</td>
</tr>
<tr>
<td>256</td>
<td>Direct steam injection</td>
<td>Pressurized (2.5 bars)</td>
<td>-</td>
<td>Bulk plants</td>
<td>Cohobage par pompe</td>
<td>Energy savings</td>
</tr>
</tbody>
</table>

**256 modifiée**

- Direct steam injection
- Hydrodistillation
- Atmospheric pressure / Pressurized (2.5 bars)
- ✓
- All types of plant
- Cohobage with pump
- Multi-purpose solution, high level of productivity
- Energy savings

**Special powders**

- Dry distillation
- Atmospheric pressure / Pressurized (2.5 bars)
- ✓
- Feeders
- Innovative solution

**Characteristics:**
- Construction materials: High-quality stainless steel (304L et 316L)
- Capacities and dimensions: from 50L to 10,000L
- Approvals and standards: EU regulations / PED Directive / CIDAP pressure vessel design code

**Ancillary equipment:**
- Tournaire can offer as an option:
  - Steam generator (electric, gas, oil)
  - Crusher, roller, chip cutter
  - Support structure
  - Waste processing
  - Discharge conveyor
  - Screw conveyor

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### Innovative solutions

Direct steam distillation of dry powder under pressure.

### R&D / pilot tests

A full series of tests can be performed in our pilot hall to validate a process and guarantee the start-up and performance of the equipment.

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**Here’s what our clients say:**

I can say without reservations that Tournaire was the best supplier, in all the evaluation items one can consider. The quality of the work, the relation with the customer, the knowledge, the respect for the deadlines are somewhat, I would like to point to the strongest features of Tournaire.

Dr. Miguel Cardoso,
NatureXtracts

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**70 COUNTRIES 3 CONTINENTS**

To consult our technical fact sheet on rectification.

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**TOURNAIRE EQUIPMENT**

Complete made-to-measure turnkey solutions, suitable for all types of raw materials.

### STEAM DISTILLATION

**FIELDS OF APPLICATION**

- PERFUMERY
- FLAVORINGS AND INGREDIENTS
- COSMETICS
- HEALTH

- 180 years of expertise in the steam distillation process.
- Unceasing innovation to meet each new need.
- Support of an expert term through all phases of the project.
Tournaire supports and advises its clients throughout all the stages of the distillation process.

Tournaire’s added value

Tournaire possesses unique experience of distillation acquired throughout its long history, covering dozens of different raw materials. Tournaire has ceaselessly improved its production and today offers the fullest and most effective range available in the sector.

From the simplest still to the most complete multi-purpose systems on the market, Tournaire designs units to suit the specific needs of each client. Tournaire offers a wide range of capacities: from pilot units of a dozen liters up to a whole series of units capable of processing several dozen tons a day.

Tournaire can offer full support for all types of project, from the initial pre-design phases through to the delivery, installation and commissioning of industrial plants. Tournaire also makes available to its clients a range of installation and commissioning of industrial units.

Tournaire also enjoys an international reputation: throughout the world its equipment is renowned for excellence, robustness, and quality of construction materials.

Still body
- Robust construction, made to last.
- Depending on loading system, possibility of half-opening hinged cover.
- Standard bolted flange closure or quick-faster bayonet system (hydraulic operation for large diameters) with mechanical security lock.
- Heating: packed circuit, double bottom or steam injection from below.
- Longitudinal discharge valve at base of unit.

Loading systems
- Solution adapted to each type of material: chain grate, stacked trays or buckets.
- On request, design of automatic transport systems for loading/discharge: mobile hopper, conveyor belt, vacuum transport.

Stirring
- Available as an option for hydrodistillation units.
- Fixed agitation (suspension of solids and improvement of heat transfer).
- Mobile system.

Multitube cooling condenser
- High efficiency multitube system with low pressure loss.
- Condensation in the tubes for ease of cleaning.
- Check of outflow temperature.

Cohobation system
- Returns distillate continuously to the still during hydrodistillation.
- Gravity-assisted cohabation (distillation at atmospheric pressure).
- Self-adjusting cohabation pump when operating under pressure.

Separators
- A full range for essences of every type: light, heavy, mixed.
- Special separators with condenser and heating/cooling system for “difficult” essences.

Automation and control systems
- From the simplest system to one that is totally regulated for full control of operational parameters.
- Regulation of steam flow, T°C, pressure, automatic loading / discharge cycle, weighing, etc.