How do I choose the right Cell Factory system for my application?

The Thermo Scientific™ Nunc™ Cell Factory™ system is available in several styles and configurations. The key to selecting the appropriate Cell Factory system is in the answers to these two questions:

1. How many cells do you need to produce per batch?

2. What are your cells used for?
   - Research
   - Process scale-up
   - Pilot scale (non-GMP)
   - GMP production
   - Seeding a larger vessel (e.g., bioreactor) for GMP production
There is a Nunc Cell Factory system for every scale:

**Standard Cell Factory system**
The standard Nunc Cell Factory system features two standard ports, providing a closed, aseptic system that is ideal for commercial-scale production of large quantities of adherent cells.

**EasyFill Cell Factory system**
Highly versatile and easy to use, the Thermo Scientific™ Nunc™ EasyFill™ Cell Factory™ system offers a sterile, single-use solution designed to optimize valuable incubator space and reduce repetitious manual handling. Suitable for both research and commercial-scale production.

**High Density Cell Factory system**
The Thermo Scientific™ Nunc™ High Density Cell Factory system offers 30% more surface area and yield* in the same footprint as the standard Cell Factory system, and is compatible with all standard Cell Factory system accessories. Expand your capacity without consuming valuable manufacturing space.

*The increase in yield may vary depending on the type of cell cultured.

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**Cell Factory system with active gassing**
This proprietary design promotes a uniform culturing environment from layer to layer through the equal distribution of gasses. It is ideal for large-scale manufacturing of stem cells and difficult-to-grow cell lines.

**To select the Cell Factory system size you need, simply complete the following steps:**

**Step 1.** Estimate your maximum cell density per Cell Factory layer: (Required cell density, per cm²) x (632 cm²) = cell density, per layer. Example: $10^4$ cells/cm² x 632 cm²/layer = $6.3 \times 10^6$ cells/layer

**Step 2.** Calculate the number of layers needed per batch: (Number of cells required per batch)/(cell density, per layer) = number of layers needed. Example: $(6 \times 10^8$ cells/batch)/$6.3 \times 10^6$ cells/layer = 9.5 layers/batch

Result: A 10-layer Cell Factory system would be an ideal solution for this example.

**Step 3.** Choose the Cell Factory system that best matches your process and work environment from the application chart provided below.

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**Application chart**

<table>
<thead>
<tr>
<th>Cell Factory system type</th>
<th>High Density</th>
<th>Standard</th>
<th>EasyFill system</th>
<th>Active gassing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of layers</td>
<td>3</td>
<td>13</td>
<td>52</td>
<td>1 2 4 10 40</td>
</tr>
<tr>
<td>Research</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>4 10 40</td>
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<tr>
<td>Process scale-up</td>
<td>• •</td>
<td>• •</td>
<td>• • •</td>
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<tr>
<td>Pilot-scale (non-GMP)</td>
<td>• •</td>
<td>• •</td>
<td>•</td>
<td>• • • •</td>
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<tr>
<td>GMP production</td>
<td>• •</td>
<td>• •</td>
<td>• • • • • • •</td>
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<tr>
<td>Seeding a larger vessel (e.g., bioreactor) for GMP production</td>
<td>• •</td>
<td>• •</td>
<td>• • • • • • •</td>
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<tr>
<td>Difficult-to-grow cell lines with pH and environmental sensitivity</td>
<td>• •</td>
<td>• •</td>
<td>• • • • • • •</td>
<td>• • • • • • •</td>
</tr>
</tbody>
</table>

**Note:** The above are only suggestions. The versatility of the Cell Factory systems enables any size to be used for each of these scales and types.

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Find out more at [thermofisher.com/cellfactory](http://thermofisher.com/cellfactory)