Production Capacity per Volume

<table>
<thead>
<tr>
<th>Volume Range</th>
<th>Aseppack – Blow Fill Seal Machine Models</th>
</tr>
</thead>
</table>
| 3 ml & Lesser Volumes | APT – 40: 24 Cavity, 3600 BPM  
|                  | APT – 50: 24 Cavity, 3600 BPM  
|                  | APT – 70: 24 Cavity, 3600 BPM  |
| 5 – 15 milliliters | 10 Cavity: 400 BPM  
|                  | 20 Cavity: 400 BPM  
|                  | 30 Cavity: 400 BPM  |
| 100 milliliters  | 2-6 Cavity: 400 BPM  
|                  | 6 Cavity: 400 BPM  
|                  | 10 Cavity: 400 BPM  |
| 500 milliliters  | 2 Cavity: 400 BPM  
|                  | 6 Cavity: 400 BPM  
|                  | 10 Cavity: 400 BPM  |
| 500 – 1600 milliliters | 10 Cavity: 400 BPM  
|                  | 20 Cavity: 400 BPM  
|                  | 30 Cavity: 400 BPM  |
| Greater Than 1 Liter | N/A: Variable  
|                  | 10 Cavity: Variable  |

BPH = Bottles or Ampules per hour  
Production is variable based on design.

Performance Pledge

Any size of machinery and custom container shapes can be built  
One year comprehensive warranty from delivery date  
Initial machine training in our facility  
Machine parts are made at our US factory  
Spare parts program  
Prompt Service  
Financing may be available

Aseptically Package Your Products to Produce FDA Approvable Goods

Machinery Information:

- **Utilities:** Vacuum, Sterile Compressed Air, Cooling water, 3 Phase Electricity
- **Sterile:** Pure steam within the product line  
- **Air systems:** Use very finely filtered air from sterile supply  
- **Processing line:** Sanitary 316 Stainless Steel and other USP type materials are used for product contact  
- **Molds:** Built custom, then tested on machinery with custom 10 and 15 mandrels  
- **Plastic:** Extruder may be used with HDPE, LDPE, PP and has also been used with several others.  
- **Built:** Constructed in our facility in Chicago/Schiller Park, IL, USA  
- **cGMP’s:** Utilizing FDA and WHO guidelines in design and construction  
- **Volume of products:** Microliters to 2000 ml

Blow – Fill – Seal Machinery

Rao Designs International, Inc.  
9451 Ainslie, Schiller Park, IL 60176

Phone: 847.671.6182  
Fax: 847.671.9276  
Email: raodesign@aol.com  
www.raodesign.com
Life-Saving Medications: Aseptic Blow-Fill-Seal is frequently utilized for intravenous therapy or medical applications.

Industries Served: Pharmaceutical, Biotechnology, Food, Beverage, Chemical and Cosmetic.

We offer research and development for your products or concepts. For a very reasonable cost we will do your product development. We are experts in constructing the BFS molding tools as well. We make molds for all types of Blow Fill Seal Machines. Do not wait so long for the competition to deliver. Within a few months you can have your machine delivered.

Blow fill seal products can be produce in Polyethylene (LDPE or HDPE), Polypropylene (PP), and many others, including new and more environmental friendly plastic polymers.

This machine will aseptically package your products so you may produce FDA approvable goods. These are used for a variety of products including IV, intravenous solutions, pharmaceutical liquids, beverages, cosmetics, a variety of gels and prestige and food applications as well. This technology is ideal for many drugs, medicines, or medications.

1. Overview
Blow-fill-seal machines combine the technologies of blow molding hollow containers with a process to fill and seal the package, all in one machine cycle. By eliminating individual machines for creating the package, filling the container, and sealing the package great savings in space and efficiency can be realized. One compact machine takes the place of an entire assembly line/operation.

2. Blow Molding
In house blow molding allows control over package design, stock levels and medical sterility that is not possible through outside procurement. The process involves the inflation of material (plastics) stamping the two halves of a mold around the inflation, forming the container.

3. Filling
Once the container is formed, a measured of liquid or viscous material flows into the container. The machine can be adjusted to use a variety of different fill products (from sterile water, infusion fluids and the like, to injectable medicines and vaccines.

4. Sealing
The mold can be designed to seal blocks of containers (ideal for ampules) or individual units. A variety of closures can be utilized that are part of the molded container, completely eliminating the need for a separate capping process. Closure designs include twist-off, break-off, or cut-off.

5. Aseptic Packaging
The process of cleaning and sterilizing containers delivered from the outside is completely eliminated. The container material is automatically sterilized in the heated inflation process and in the pressurized packaging head. There is no danger of contamination while transporting the container to a filling or capping station as this all occurs within the mold.

6. Application Oriented Packaging
The benefit of using blow molded plastics is that the container can be manufactured in many different shapes and sizes. Contourable packaging is widely used for infusion solutions. The soft plastic material allows for the administration of intravenous solutions without the need for air compensation (filters or venting).

7. Summary
The complete Blow/Fill/Seal machine allows for considerable savings in space, increased efficiency and complete sterility.

Complete control of the delivery, quality and cleanliness of containers is held-in-Neva. Containers can be customized to the individual company, giving a unique package associated with your medical products.

Flexibility in design allows for application oriented packaging (squeeze applicators, I.V. sets, premoistened dressing).

Molded closures eliminate the need for a separate capping machine/procedure.

Complete safety from contaminants by completing the entire process in one machine, within a controlled sterile environment.

Aseptically Package Your Products So You May Produce FDA Approvable Goods

Aseptic Filling Lines Provide Longer Product Life And Are Contamination free

Dropper type bottles work well for eye care

Blow-Fill-Seal for IV fluids

APT Machinery Provide Blow-Fill-Seal Containers for Liquids

Aseptic Filling Lines Provide Longer Product Life And Are Contamination free

Dropper type bottles work well for eye care

Blow-Fill-Seal for IV fluids

Product Development

Aseptic Fill-Seal are one of the best aseptic methods available

Single unit dose containers and BFS are one of the best aseptic methods available

Prevent Contamination

On custom made machinery

Tested design for packaging, which is validated in a matter of weeks

May feature cap, stopper, insert, or special filling

Innovative

User Friendly

Fast Turnaround

Very High Quality
Life-Saving Medications: Aseptic Blow-Fill-Seal is frequently utilized for intravenous therapy or medical applications.

Industries Served:
Pharmaceutical, Biotechnology, Food, Beverage, Chemical and Cosmetic.

We offer research and development for your products or concepts. For a very reasonable cost we will do your product development. We are experts in constructing the BFS molding tools as well. We make molds for all types of Blow Fill Seal Machines. Do not wait so long for the competition to deliver. Within a few months you can have your machine delivered.

Blow-fill-seal products can be produce in Polyethylene (LDPE or HDPE), Polypropylene (PP), and many others, including new and more environmental friendly plastic polymers.

This machine will aseptically package your products so you may produce FDA approvable goods. These are used for a variety of products including for IV, intravenous solutions, pharmaceutical liquids, beverages, cosmetics, a variety of gels and creams, and food applications as well. This technology is ideal for many drugs, medicines, or medications.

Aseptically Package Your Products So You May Produce FDA Approvable Goods

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2. Blow Molding
In house blow molding allows control over package design, stock levels and medical sterility that is not possible through outside procurement. The process involves the extrusion of material (plastics) stamping the two halves of a mold around the extrusion, forming the container.

3. Filling
Once the container is formed, a measured of liquid or viscous material flows into the container. The machine can be adjusted to use a variety of different fill products (from sterile water, infusion fluids and the like, to injectable medicines and vaccines.

4. Sealing
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6. Application Oriented Packaging
The benefit of using blow molded plastics is that the container can be manufactured in many different shapes and sizes. Contamination control is widely used for infusion solutions. The soft plastic material allows for the administration of intravenous solutions without the need for air compensation (filters or venting).

7. Summary
The complete Blow/Fill/Seal machine allows for considerable savings in space, increased efficiency and complete sterility.

- Complete control of the delivery, quality and cleanliness of containers is held-in-Neva. Containers can be customized to the individual company, giving a unique package associated with your medical products.
- Flexibility in design allows for aseptic oriented packaging (squeeze applicators, I.V. sets, premastered dosing).
- Molded closures eliminate the need for a separate capping machine/procedure.
- Complete safety from contaminants by completing the entire process in one machine, within a controlled sterile environment.

Aseptic Filling Lines Provide Longer Product Life and Are Contamination Free

Dropper type bottles work well for eye care

Single unit dose containers and BFS are one of the best aseptic methods available

Blow-Fill-Seal for IV fluids

APTF Machinery Provide Blow-Fill-Seal Containers for Liquids

- Prevent Contamination
- On custom machinery
- Tested design for packaging, which is validated in a matter of weeks
- May feature cap, stopper, insert, or special filling
- Innovative
- User Friendly
- Fast Turnaround
- Very high quality
**Life-Saving Medications:**

Aseptic Blow-Fill-Seal is frequently utilized for intravenous therapy or medical applications.

**Industries Served:**

Pharmaceutical, Biotechnology, Food, Beverage, Chemical and Cosmetic.

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**Overview**

Blow-fill-seal machines combine the technologies of blow molding hollow containers with a process to fill and seal the package, all in one machine cycle. By eliminating individual machines for creating the container, filling the container, and sealing the package great savings in space and efficiency can be realized. One compact machine takes the place of an entire assembly line operation.

**2. Blow Molding**

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Once the container is formed, a measured of liquid or viscous material flows into the container. The machine can be adjusted to use a variety of different fill products (from sterile water, infusion fluids and the like, to injectable medicines and vaccines.

**4. Sealing**

The mold can be designed to seal blocks of containers (ideal for ampules) or individual units. A variety of closures can be utilized that are part of the molded container, completely eliminating the need for a separate capping process. Closure designs include twist-off, break-off, or cut-off.

**5. Aseptic Packaging**

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**6. Application Oriented Packaging**

The benefit of using blow molded plastics is that the container can be manufactured in many different shapes and sizes. Contiguous packaging is widely used for infusion solutions. The soft plastic material allows for the administration of intravenous solutions without the need for air compensation (filters or venting).

**7. Summary**

We provide吹合せ包装 (Blow-Fill-Seal) machine for IV fluids.

**Product Development**

Aseptic Filling Lines Provide Longer Product Life And Are Contamination free

**Single unit dose bottles work well for eye care**

**Blow-Fill-Seal for IV fluids**

**Dropper type bottles work well for eye care**

**Aseptically Package Your Products So You May Produce FDA Approvable Goods**

APR Machinery Provide Blow-Fill-Seal Containers for Liquids

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevent Contamination</td>
<td>On custom built machinery Tested design for packaging which is validated in a matter of weeks</td>
</tr>
<tr>
<td>May feature cap, stopper, insert, or special filling</td>
<td>Innovative User Friendly Fast Turnaround Very High Quality</td>
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</tbody>
</table>
### Performance Pledge

- Any size of machinery and custom container shapes can be built
- One year comprehensive warrantee from delivery date
- Initial machine training in our facility
- Machine parts are made at our US factory
- Spare parts program
- Prompt Service
- Financing may be available

### Aseptically Package Your Products to Produce FDA Approvable Goods

<table>
<thead>
<tr>
<th>Production Capacity per Volume</th>
<th>Aseppack – Blow Fill Seal Machine Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 ml &amp; Lesser Volumes</td>
<td>APT – 40 Small Volume Parenterals</td>
</tr>
<tr>
<td>5 – 15 milliliters</td>
<td>APT – 50 3000 BPM</td>
</tr>
<tr>
<td>100 milliliters</td>
<td>APT – 70 40 Cavity 60 Cavity</td>
</tr>
<tr>
<td>500 milliliters</td>
<td></td>
</tr>
<tr>
<td>1000 – 1000 milliliters</td>
<td></td>
</tr>
<tr>
<td>Greater Than 1 Liter</td>
<td></td>
</tr>
</tbody>
</table>

- **BPH** = Bottles or Ampules per hour
- Production is variable based on design

### Machinery Information:

- **Utilities:** Vacuum, Sterile Compressed Air, Cooling water, 3 Phase Electricity
- **Sterile:** Pure steam within the product line
- **Air systems:** Use very finely filtered air from sterile supply
- **Processing Line:** Sanitary 316 Stainless Steel and other USP type materials are used for product contact
- **Molds:** Built custom, then tested on machinery with custom fill and blow mandrels
- **Plastic:** Extruder may be used with HDPE, LDPE, PP and has also been used with several others.
- **Built:** Constructed in our facility in Chicago/Schiller Park, IL, USA
- **cGMP’s:** Utilizing FDA and WHO guidelines in design and construction

### Volume of products:

- Microliters to 2000 ml
Aseptically Package Your Products to Produce FDA Approvable Goods

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<tr>
<td>per Volume</td>
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<tr>
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<td>APT – 40: 40 cavity 3000 BPM</td>
</tr>
<tr>
<td></td>
<td>16 cavity</td>
</tr>
<tr>
<td></td>
<td>36 cavity</td>
</tr>
<tr>
<td>5 – 15 milliliters</td>
<td>APT – 50: 24 cavity 3600 BPM</td>
</tr>
<tr>
<td></td>
<td>10 cavity</td>
</tr>
<tr>
<td>100 milliliters</td>
<td>APT – 70: 6 cavity Minimum Variable</td>
</tr>
<tr>
<td></td>
<td>10 cavity Maximum Variable</td>
</tr>
<tr>
<td>500 milliliters</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 cavity 450 BPM</td>
</tr>
<tr>
<td>500 – 1600 milliliters</td>
<td>N/A 4 cavity 1600 BPM</td>
</tr>
<tr>
<td>Greater Than 1 Liter</td>
<td>N/A Variable</td>
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BPH = Bottles or Ampules per hour  Production is variable based on design.

Performance Pledge

*Any size of machinery and custom container shapes can be built*

*One year comprehensive warrantee from delivery date*

*Initial machine training in our facility*

*Machine parts are made at our US factory*

*Spare parts program*

*Prompt Service*

*Financing may be available*

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