Starchless Depositing for Gummies
Ideal production method

Starchless depositing is ideal for manufacturers of high-quality products with defined shapes in high quantities, ranging from standard sweets and vitamin-enriched jellies to semi-pharmaceutical products. The method is suitable for depositing gelatin, pectin and carrageenan masses.

Starchless depositing in less time

**ChocTek** has developed a starchless depositing method for the production of pure gelatin gummies in silicone moulds. The method utilizes an advanced version of the Polycarbon board mould (PCM) system, which can fill up to 10 moulds per minute. The depositing head design was also optimized, which enables jelly masses with a high dry substance and commercial gelatin to be deposited. Jelly masses can usually be demoulded after 40 minutes.

Benefits for manufacturers

**Shortened production times**
- Manufacturers can use commercial high-bloom gelatin for jelly mass production, which can be demoulded after only 40 minutes.
- Gummy no longer need to be placed in a drying room for 24 to 72 hours to mature.

**Reduced footprint and minimized energy costs**
- Elimination of the drying room saves space in the production hall.
- Replacement of tens of thousands of starch trays with a few hundred, reusable silicone moulds.
- Elimination of powder storage and treatment.

**Single-source solution provider**

As part of SaintyCo, ChocTek tailor-made single-source solutions and guarantees comprehensive advisory services and customer care. The SaintyCo portfolio includes single machines, like our PCM depositing machine, as well as complete systems, including dissolving line and weighing system.
Weighing and Dissolving System

CVC Series
Continuous Vacuum Cooker
for the production of depositing masses
for starchless depositing

Block-48/96
for starchless depositing of gelatin products
(also for pectin and carrageenan products)
Overview product variety of the Block-48/Block-96

**Pectin-Jelly:**
These products are produced with a max of 10 moulds / minute

<table>
<thead>
<tr>
<th>Pectin-Jelly</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Solid (Mono)</td>
<td>Centre-In-Shell</td>
</tr>
</tbody>
</table>

Production capacity example: Mono-/Solid Pectin-Jelly

<table>
<thead>
<tr>
<th>Mono-/Solid:</th>
<th>Product dimension</th>
<th>Piece-weight</th>
<th>Piece / hour</th>
<th>kg / hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block-48</td>
<td>Dome shape Diameter = 20 mm</td>
<td>4.3g</td>
<td>40,320</td>
<td>173</td>
</tr>
<tr>
<td>Block-96</td>
<td>Dome shape Diameter = 20 mm</td>
<td>4.3g</td>
<td>80,640</td>
<td>346</td>
</tr>
</tbody>
</table>

Production capacity example: Centre-In-Shell:
Shell mass: Pectin
Filling mass: e.g. Carrageenan or starch

<table>
<thead>
<tr>
<th>Centre-In-Shell:</th>
<th>Filling ratio weight %:</th>
<th>Product dimension</th>
<th>Piece-weight</th>
<th>Piece / hour</th>
<th>kg / hour</th>
</tr>
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<tr>
<td>Block-48</td>
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**Note:**
For some combinations of shell and filling masses, temperature separation from the hopper to the nozzles is necessary. This can be quoted as an option.
Stages of expansion of the Block-48/Block-96

**Block-48/Block-96**  Depositing and Cooling + Mould handling (mould-circuit), and is complemented by the following functions:

<table>
<thead>
<tr>
<th>Block-48/Block-96</th>
<th>Gummies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turning (mould)</td>
<td>☒</td>
</tr>
<tr>
<td>Mould exchanger(Removal &amp; Insertion)</td>
<td>☒</td>
</tr>
<tr>
<td>Oil spraying unit</td>
<td>☒</td>
</tr>
<tr>
<td>Supply cabinet+depositor</td>
<td>☒</td>
</tr>
<tr>
<td>Vibration</td>
<td>☒</td>
</tr>
<tr>
<td>Cooling tunnel</td>
<td>☒</td>
</tr>
<tr>
<td>Demoulding station</td>
<td>☒</td>
</tr>
<tr>
<td>Discharge belt</td>
<td>☒</td>
</tr>
</tbody>
</table>

**Note:**
Please note: The actual Block-48/Block-96 only requires approx. 25 to 30 moulds. However, the products require a longer cooling time / dwell time in the moulds before they are properly jellified for demoulding.

Based on an assumption of 40 min cooling, approx. 450 moulds are a more realistic figure.
Prices are valid when ordering with the line.
Different pump systems and depositor size-parts are required depending on the product dimensions and mould layout.

Example picture – solid jellies

**Pump system solid – jelly**
Deployed in: Basic machine No.1
Pump system name: “solid-jelly-pump-A”
For use with product: “Block-48/Block-96”

suitable for:
- smooth masses
- Masses with ingredients of max. 2mm

consisting of:
- 1x heated hopper with horizontal stirrer
- 1x heated solid pump system with one rotary valve
- Block-48 with 48 pistons with diameter: Ø 12 mm
- Block-96 with 96 pistons with diameter: Ø 12 mm
- Excluding Depositing parts

**Depositor size parts for solid / Mono jelly products**

**Depositor size part-set Mono (one-stroke production)**
For use with pump system: „solid-jelly pump-A“
1x piston program bar
1x Mono nozzle plate with 66 nozzles (Ø 4mm, to be discussed)
Prices are valid when ordering with the plant. Different pump systems and depositing parts are required depending on the product dimensions and mould layout.

Sample products single-filled products / Centre-In-Shell

**Upgrade of solid to Centre-In-Shell depositor**

**Mono block+mono block= Centre-In-Shell**

In addition to the drive units of the Mono block the following components will be added to transform the depositor into a Centre-In-Shell unit:

a) second, individual piston-drive unit (servo)

b) second, individual rotary-valve-drive (pressurized air)

c) extended/second pump-block module in order to double the number of pistons compared to the Mono block

d) second mass hopper (for filling mass), including level sensor

e) second tempering unit to heat both hopper and pump

Thus, with this option the “solid-jelly-pump-A” is transferred “one-shot-jelly-pump-A” excluding depositor size-part for Centre-In-Shell
**Size parts for single filled products**

Please note: some centre-filled products require size parts with temperature separation between the shell and the filling mass until the mass finally leaves the nozzle tip.

**Depositing parts (one-stroke production)**

Use with pump system: “one-shot-jelly-pump-A”

Use with product: “Jelly-OS”

1x piston program bar for shell- and 1x for filling side of pump systems

1x One-Shot nozzle plate with 48 One-Shot nozzles/Block48 and 96 One-Shot nozzles/Block96.

(shell: 12 mm/ filling: 10 mm)
The answer to your market and your needs

For decades ChocTek has been involved in developing production units dedicated to your marketing objectives in terms of development. ChocTek solutions meet all the principle of adaptability. Customized, they can accommodate at any time different types of auxiliary equipment and optional features.

Operator benefits

Like genuine clockwork in its complexity, ChocTek solution is easy to run. On one hand the ergonomic conception gives security and comfort, on the other hand a very large panel of tools was worked out to provide help and assistance.

Equipment designed and manufactured by ChocTek is provided with guards and safety devices according to sound design practice

• Full Complement of Guards with Selected Interlocks with automatic machine stop
• Touch screen operator control for ease of operation
• Low noise level for a better comfort of the operator
• Complete Operations Manual for machine operation & maintenance
• Tool box containing the tools necessary for proper maintenance
• Operator Training
• Standard and suggested Spare Parts are included

Technical benefits

ChocTek engineering offers the prestige of quality equipment, combining the latest technology with remarkably intelligent design. ChocTek equipment is a major asset for a manufacturer.

• Precise adjustment of the piston assemblies
• Precise adjustments between machine stations
• Adaptation to various local standards (security and electrical standards)
• Adaptation to the different high quality automation systems
• Durable and quality machine design
• Our suppliers also partner with notable industries including aeronautics and automobile

Financial benefits

The choice of a ChocTek solution is a wise one. Only reliability at short, middle or long term can guarantee a qualitative and quantitative return on investment.

This criteria is part of the specifications of our equipment.

• Adaptation to different market segments (innovation)
• High productivity
• Fast return on investments
• Very low refuse rate / waste
• Long-term technological reliability
The "Servotech" philosophy

The ChocTek solutions dedicated to our customers have two primary functions: firstly the control of each part of the line and in-line equipment, and secondly automation and programming.

- Ease and fast change of the mould
- Automatic dosing control thru the touch screen operator interface
- Less manual adjustments >safer for operator
- Hotline (VPN) >very fast service in real-time
- Ease of adding at any time different types of auxiliary equipment and optional features

Advanced "Servotech"

Main Drive
Direct drive with servo motor to increase stability

Loose-mould-principle
Easy and automated exchange of the moulds in the Block version without tools, since the mould is NOT bolted to the chain.

Piston Drive
The piston stroke is driven by a PLC controlled servo drive. All parameters are shown on the screen display.

Mould Tracking
The mould and its current status (e.g. deposited, cooled, demoulded) is tracked by an electronic "Shift-register"

Modularity & Flexibility
Depositor can be upgraded from solid to One-Shot at any time.
Further depositor can be retrofitted at any time.

Demoulding
The products are demoulded/stuck to the silicone belt in a regimented way.
Sticking together among the products is minimized.

Maintenance & Accessibility
Numerous doors and transparent covers allow permanent observation of your production process.
Continuous main drive, therefore no adjustment of transitions between different functions/stations necessary.