FXS Combi
Filling and closing machine for nested syringes, vials and cartridges
The FXS Combi is an extremely flexible solution for your pharmaceutical filling operations. Depending on the output and container, the machine with two or five positions processes pre-sterilized syringes, vials and cartridges at low and medium output rates. The FXS Combi features an integrated capping station for vials and cartridges. For you this implies a space-saving adaptation to your production environment and line concepts combined with maximum safety and product yield.

### Three packaging types in combination
Based on our long-standing experience in filling and closing of different containers, the FXS Combi can now be used for as many as three packaging types.

- For pre-sterilized nested syringes, vials and cartridges (pre-capped and pre-stoppered)
- Also suited for the processing of vials for lyophilization

### Fully automatic removal
After the nests have been unbagged and opened, for example by the upstream ABO bag opener and ATO tub opener (option), they are removed from the tubs and transferred to the transport system of the filling module. Manual loading is also possible as an alternative.

### Filling and closing
Suited for all Bosch filling technologies, e.g.:
- Rotary slide valve piston pump (standard)
- Peristaltic pump
- Time-pressure filling system
- Rolling diaphragm pump
- Option for combi filling station: combination of different filling systems (e.g. rotary slide valve piston pump and peristaltic pump)
- Option for syringes and cartridges: vacuum filling and vacuum stopper insertion
- Option for cartridges: sensor filling and bead insertion station
Maximum product yield/
In-process checkweigh (option)
Make almost 100 percent of your pharmaceutical liquids usable for filling through optional filling on a checkweigher during the start-up and run-empty processes. Filling weights are checked via statistical In-process checkweigh (IPC).

- Precise filling for maximum product yield
- Safe stopper insertion directly after filling

Integrated capping station
The integrated capping station makes it possible to cap the vials directly after stoppering – this saves space and ensures the highest pharmaceutical safety. Pre-stoppered cartridges are also capped directly after filling.

Outfeed
After the containers have been capped, the nest is placed back into the tub and discharged from the FXS Combi. The containers can also be placed on an outfeed conveyor one by one.

Lyophilization
After stopper insertion, the vials are removed from the nest and transferred to lyophilization.

Denesting module
Existing or classic capping machines can be integrated into the concept, as an alternative to the capping station of the FXS Combi. The vials are simply removed from the nest and conveyed to the capping machine.
Important options
- Fully automatic In-process-checkweigh (IPC)
- Bosch system for maximum product yield
- Different filling technologies, e.g. Bosch peristaltic pump
- Combi filling station
- Vacuum filling and vacuum stopper insertion
- Upstream expansion with manual or fully automated tub and bag openers
- Flexible drug development with single-use filling system PreVAS
- Combination with RABS and isolator

Your advantages at a glance
- All packaging types on one machine (nested syringes, vials and cartridges)
- Suited for all common Bosch filling technologies
- Very precise filling operations for high product yield
- Easy and quick format changes
- Integrated capping station for maximum pharmaceutical safety
- Flexible integration in complete line concepts
Technical Data

<table>
<thead>
<tr>
<th>Containers per nest</th>
<th>Filling and stoppering</th>
<th>Capping standard version</th>
<th>Capping with higher output</th>
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<th>Capping standard version</th>
<th>Capping with higher output</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Syringe</strong> 1ml-long</td>
<td>up to 5,400/h</td>
<td>up to 11,300/h</td>
<td></td>
<td>up to 11,300/h</td>
<td>up to 11,300/h</td>
<td></td>
</tr>
<tr>
<td><strong>Vials</strong> 2R liquid dry</td>
<td>up to 4,200/h</td>
<td>up to 1,000/h</td>
<td>up to 8,800/h</td>
<td>up to 1,000/h</td>
<td>up to 7,800/h</td>
<td></td>
</tr>
<tr>
<td><strong>Cartridges</strong> 3 ml pre-capped</td>
<td>up to 1,800/h</td>
<td>up to 1,000/h</td>
<td>up to 7,000/h</td>
<td>up to 1,000/h</td>
<td>up to 6,500/h</td>
<td></td>
</tr>
<tr>
<td>pre-stoppered</td>
<td>up to 1,800/h</td>
<td>up to 1,000/h</td>
<td>up to 7,000/h</td>
<td>up to 1,000/h</td>
<td>up to 6,500/h</td>
<td></td>
</tr>
</tbody>
</table>

Processing range

- **Syringes** 0,5–20 ml, 50 ml option
- **Vials** 2 R–30 R (other sizes on request)
- **Cartridges** 1,5 and 3 ml (other sizes on request)

Selected options included. 
Subject to technical modifications. All dimensions in mm.