Filling and Closing Machines

for Syringes and Cartridges

OPTIMA

EXCELLENCE IN PHARMA

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OPTIMA pharma –
Leading in Quality and Diversity

Optima Pharma specialises in development, design and manufacture of machines and lines in the field of sterile filling technology. Lines for syringes and syringe systems offer you the ideal solution for your application:

- ► Safety in the application and maximum product protection
- ► High quality in sterile production
- ► Efficiency in production

The machines for processing pre-sterilized disposable glass and plastic syringes both nested and in bulk forms, and cartridges are constantly developed based on the continuous dialogue with customers and on the changing requirements within the industry. This results in innovative and proven machine concepts for a functional production process, which offers you a number of advantages.

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Washer

The Perfect Solution for Wet Cleaning

Optima Pharma washers are completely made of stainless steel, non-corrosive, pharma-conform material. The washers are designed in accordance with cGMP standards and have got a wide variety of usage. Product contact parts are easy to clean and are easily accessible. For the cleaning and treatment of containers, all cleaning media customary to the pharmaceutical industry can be used.

Type	VWM 218	WMR 600	WMR 1800	WMR 2400
Machine type	Fully automatic intermittent	Fully-automatic continuous		
Containers	Cartridges	Syringes / Cartridges	Syringes / Cartridges	Syringes / Cartridges
Container size range: Neck opening Outer diameter Max. height (depending on container shape)	One chamber cartridge 1.5 and 3 ml Double chamber cartridge 3 ml	> 5 mm 7–30 mm up to 115 mm	> 5 mm 7–30 mm up to 115 mm	> 5 mm 7–30 mm up to 115 mm
Spray position	1–2	1–4	1–6	1–8
Output (depending on container shape)	up to 4,800 pcs./h	up to 12,000 pcs./h	up to 18,000 pcs./h	up to 24,000 pcs./h
Processing sequences	8	7	6	6
Ultrasonic infeed/Siliconization	Optional	Optional	Optional	Optional
Max. number of recirculation stations	1	1	1	1
Infeed of containers	Transport grippers	Transport grippers	Transport grippers	Transport grippers

Model WMR 600

Sterilization Tunnel

For all Purposes

Optima Pharma sterilization tunnels are part of a complete aseptic filling line designed to sterilize and to depyrogenate glass containers such as syringes and cartridges – from cleaning to aseptic filling a continuous operation mode in a clean room environment. The tunnel program consists of Laminar-Flow (LF) hot air tunnels, and infrared/hot air combination tunnels. Depending on your application, Optima Pharma has the right tunnel for you.

Technical Data:

Type	SHT/SHT IR
Conveyor belt width	300, 450, 600, 800, 1250, 1600
Transport height	900 mm +/- 25 mm
Filter system	HEPA filters - H13/H14
Output	up to 44,000/h. bei 10H (depending on container)
Heating temperature output	20 – 200 KW (depending on output)
Cooling power	0.3 – 15 m^3/h
Sterilizable cooling zone	Optional

Heat sterilization of the cooling zone

- Automatically lockable and heated gas-tight tunnel door with sealing at the outfeed ot the tunnel
- Isolation of the cooling zone
- Special fans
- Separate closed cooling circuit with recirculation pump and mixing valve for the sterilizable cooling zone
- Sterilization program for sterilization implementing

Syringe Handling

Debagger Systems for Bags and Tubs

Type DBM
Manual system with manual opening of the bags using gloves.

Type DBS
Semi-automatic system with manual opening of the bags using gloves. The bags are fed either manually or automatically to the debagger. The bags are then opened semi-automatically and disposed of.

Type DBA
The bags are automatically fed and opened. The tub is automatically removed from the opened bag. The bag is then automatically disposed of.

Type	Type DBM	Type DBS	Type DBA
Machine description	Manual bag debagger	Semi-automatic bag debagger	Fully-automatic bag debagger
Syringe systems	All commercially available nested syringes in tubs and bags		

Type TRH
Manual system with manual opening of the bags using gloves.

Type TRS
Fully-automatic Tyvek® delid deliner.
Device to hold tubs during delid-deliner process. The Tyvek® adhesive is melted using heated jaws. After a preset time, the Tyvek® lid is removed by means of a vacuum frame and disposed into a bin.

Type TRR
Fully-automatic cleanroom suitable robot system for Tyvek® lid and liner removal. The syringe handling robot is specifically designed for clean room applications. The handling robot peels off the Tyvek cover from the tub, removes the Tyvek® liner and transports the tubs with a gripper.

Type	Type TRH	Type TRS	Type TRR
Machine description	Semi-automatic Tyvek® removal box	Fully-automatic Tyvek® heating system	Fully-automatic Tyvek® lid and liner removal robot system
Syringe system	All commercially available nested syringes in tubs and bags		

Nested Syringes, Vials

For Small Batches – Type SV 122

A fully-automatic filling and closing machine to process disposable, nested syringes. Format range up to 50 ml. An output up to 4,800 syringes/hour can be reached with the 2-lane model. High dosing accuracy by means of continuous operation rotary piston pumps. The SV 122 can be quickly retrofitted to process vials. The SV 122 is also available for use with isolator technology, vacuum filling and stopper insertion (optional).

Advantages

- Compact construction
- Reputable service
- Highest dosing accuracy
- Superior construction

Optional

- Vacuum filling and stopper inserting
- Prepared for the processing of vials

Nested Syringes, Vials and Cartridges

For Medium Output – Type SV 125

With the SV 125 it is possible to process **three different container types on a single machine**.

The SV 125 can be made to process nested syringes, nested vials and nested cartridges.

It is also possible to integrate up to three different types of filling systems, such as peristaltic, rotary pump and time-pressure, to meet a broad range of product requirements. Filling and closing with vacuum is also optionally available.

Switching over from one container type to another is comparable to a conventional format change on the machine.

The filler can be rounded out with tertiary equipment such as debagger or Tyvek lid and liner removal for full line automation.

Equipped with isolator technology, the highest levels of sterility are achieved.

Sized Output:

5,700 syringes/h. (2-lane)
12,500 syringes/h. (5-lane)
20,000 syringes/h. (10-lane)

Advantages

- Slim and compact design
- High speed machine technology and design
- 2- 5- or 10-lane dosing system
- High dosing accuracy
- Quick changeover time of format parts

Optional

- Vacuum filling and stopper insertion
- IPC
- Pre- and post gas flushing
- Machine can be quickly retrofitted to process nested vials and cartridges
- Isolator design

Nested Syringes, Vials and Cartridges

High Reliability with Type H4–10

The new filling and closing machine, model H4–10 meets customers' requirements for simple operation, ease of accessibility, reliability and compact design. Nested syringes, vials and cartridges are all processed.

Automated Tyvek ® lid and liner removal can be integrated if required. Space for the robot is foreseen on the filling machine, thereby saving space.

For filling, a ten-position system is provided. For filling flexibility and simple format changes, rotary piston pumps as well as peristaltic or time-pressure filling systems can be added at any time.

Regardless whether oRABS, cRABS or isolator, all systems can be economically fitted to the standardized machine baseplate.

The transport system of H4-10 ensures particularly careful handling of the containers. A high output rate of up to 24,000 objects/h. is achieved. Retrofitting can also increase output to 36,000 objects/h.

The same applies to upgrading of in-process control (IPC), vacuum filling and vacuum stopper inserting.

Output:
24,000 syringes/h. (10-lane)

Advantages

- Modular an cost optimized
- High speed machine technology and design

Optional

- Output can be increased to 36,000 objects/h.
- IPC
- Pre- and post gas flushing
- Easy retrofit of: vacuum filling and stopper insertion
- All containment systems – oRABS, cRABS, Isolator can be economically mounted on the standardized machine table top plate.

Nested Syringes, Vials and Cartridges

High Reliability with Type H6–10

With the H6–10 it is possible to process three different container types on a single machine.

The machine can be made to process nested syringes, nested vials and nested cartridges.

It is also possible to integrate up to three different types of filling systems, such as peristaltic, rotary pump and time-pressure, to meet a broad range of product requirements. Filling and closing with vacuum is also optionally available.

Output: :
36.000 syringes/h. (10-lane) H6–10

Advantages

- Highest dosing technique either with
  - > rotary piston pumps
  - > time pressure dosing system
  - > peristaltic dosing system
- Linear and vertical processing of tubs
- Linear transport system allows the combination of the H10–16 with other machinery
- Slim design for use with an isolator

Optional

- Vacuum filling and stopper inserting
- 100 % IPC
- Machine can be quickly retrofitted to process nested vials and cartridges
- Integration of all containment systems: oRABS, cRABS / Isolator

Nested Syringes, Vials and Cartridges

High Reliability with Type H10–16

A fully-automatic filling and closing machine to process disposable, commercially available nested syringes. Format range up to 20 ml. An output up to 60,000 syringes/hour can be reached with the 16-lane version. The machine is equipped with an infeed and a discharge conveyor belt for the tubs.

Advantages

- Highest dosing technique either with
  > rotary piston pumps or
  > time pressure dosing system or
  > peristaltic dosing system
- Linear and vertical processing of tubs
- The linear transport system allows the combination of the H10-16 machine with other machinery
- Slim design
- Isolator suitable

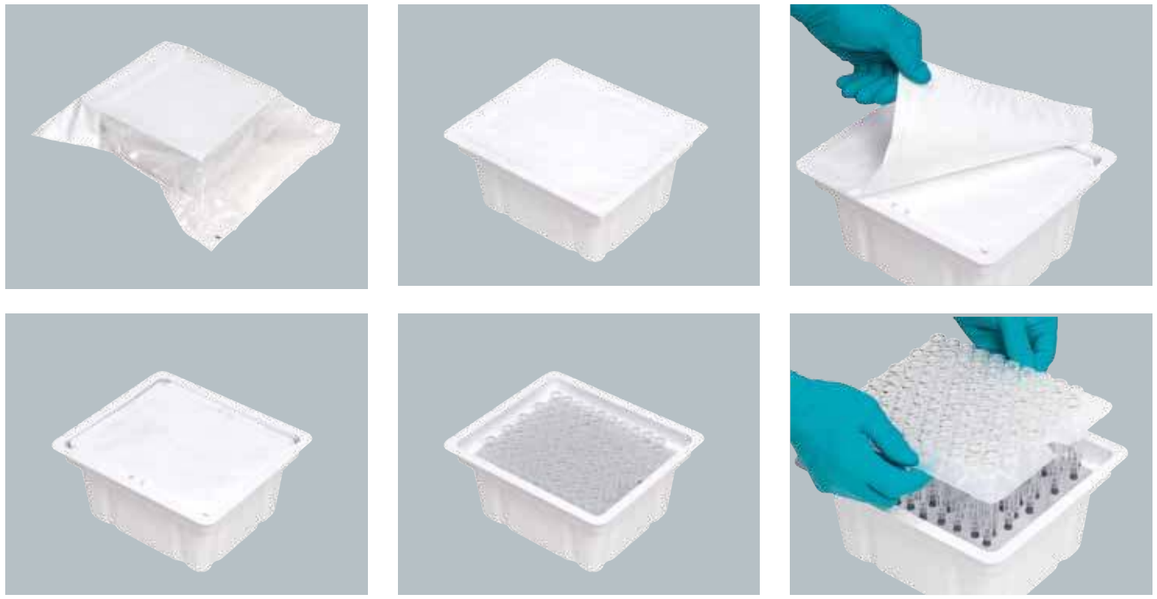
Optional

- Vacuum filling and stopper inserting
- 100 % IPC
- Machine can be quickly retrofitted to process nested vials and cartridges
- Integration of all containment systems: oRABS, cRABS / Isolator

Nested Syringes, Vials and Cartridges

Technical Data

Type	SV 122	SV 125	H4-5/H4-10	H6-10	H10-16
Syringe size range	0.5 ml - 50 ml(syringes) up to 50 ml (vials)	0.5 ml - 50 ml(syringes) up to 50 ml (vials) 3, 5, 10 ml (cartridges))	0.5 ml - 20 ml (syringes) up to 50 ml (vials) 3, 5, 10 ml (cartridges))		
Dosing value (depending on selected pump size)	0.1 - 50 ml		0.1 - 20 ml		
Dosing system	Rotary Piston Pumps, Time Pressure Filling System, Peristaltic Pumps				
Filling heads	2-lane	2-lane 5-lane 10-lane	2-, 5-lane (on request) 10-lane	10-lane	10-lane 16-lane
Output (Syringes/h)	4,800 (2-lane)	5,700 (2-lane) 12,500 (5-lane) 20,000 (10-lane)	24,000 (10-lane)	36,000 (10-lane)	60,000 (16-lane)
Option	Vacuum filling and stopper inserting Pre- and post-gas flushing	Vacuum filling and stopper inserting Pre- and post-gas flushing IPC			



Bulk Syringes
Filling Systems

Bulk syringe filling places high demands on machine design concepts. The complexity of entire lines make them technically the most demanding challenge in the pharmaceutical industry. With Optima Pharma you can be certain you have chosen the right partner.

Syringe Filling and Closing Machine for Small and Medium Output
Fully-automatic syringe filling and closing machine to process bulk, glass and plastic syringes with one filling head. Output of the VSVM 3000 machine up to 3,600 syringes/hour. Dosing volume: 0.1 ml - 20 ml.

Medium Sized Output
Fully-automatic syringe filling and closing machine to process bulk, glass and plastic syringes with two filling heads. Output of the VSVM 4000 machine up to 7,200 syringes/hour. The dosing volume ranges between 0.1 ml and 20 ml.

High Sized Output
Fully-automatic syringe filling and closing machine to process bulk, glass and plastic syringes with three to eight filling heads. Output of the VSVM 1800 machine up to 18,000 syringes/hour. Dosing volume: 0.1 ml - 50 ml.

Advantages

- IPC
- Combination of different working stations for assembly of syringe applications

Bulk Syringes
Technical Data

Type	VSVM 3000	VSVM 4000	VSVM 600	VSVM 900	VSVM 1200	VSVM 1800
Machine description	Fully-automatic syringe filling and closing machine 1-lane	Fully-automatic syringe filling and closing machine 2-lane	Fully-automatic syringe filling and closing machine 1-2-lane	Fully-automatic syringe filling and closing machine 3-4-lane	Fully-automatic syringe filling and closing machine 3-6-lane	Fully-automatic syringe filling and closing machine 8-lane
Syringes	Glass and plastic syringes					
Transport system	Star-wheel		Oval race track			
Dosing volume	0.1 - 20 ml			0.1 - 50 ml		
Syringe size range	0.5 - 20 ml syringes max. ø 21,5 mm max. length 125 mm			0.5 - 20 ml syringes max. ø 21.5 mm max. length 125 mm	0.5 - 20 ml syringes max. ø 21.5 mm max. length 125 mm	0.5 - 3 ml syringes max. ø 10.85 mm
Filling head	1	2	1 - 2	3 - 4	3 - 6	4 - 8
Output (depending on product characteristics and syringe)	up to 3,600 syringes/h	up to 7,200 syringes/h	up to 6,000 syringes/h	up to. 9,000 syringes/h	up to 12,000 syringes/h	up to 18,000 syringes/h

Bulk Syringes UniJect
Filling System

BD UniJect™ "Prefill Injection Device" is a cost efficient, non-reusable and high quality injection unit for intramuscular and subcutaneous applications. The model UJ guarantees a safe operation process, flexibility, a compact design and combines these features with a high output – the UJ 120, UJ 150 and UJ 300.

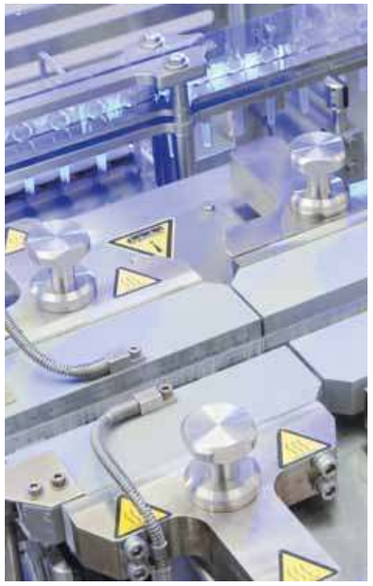
With the model UJ almost no extra size parts are required to process all UniJect™ devices. The UniJect™ devices are smoothly processed by means of an unwinding and rewinding device in a custom designed transport system. The filling station of the UJ is designed for different filling systems: time pressure, rotary piston pumps or peristaltic pumps. This allows you to process various media. Programmable fill movements permit an optimal output. Parameters of different products and filling volumes are set simply by means of a teach-in function. The UniJect™ devices are sealed by a heat sealing module. Process data, like time, temperature and pressure are continuously monitored and adjusted.

Optional

- ▶ Semi-automatic debagger
- ▶ RABS execution

Bulk Syringes UniJect
Technical Data

Type	UJ 120	UJ 150	UJ 300
Machine description	Fully-automatic filling and closing machine		
Syringe systems	UniJect™ "Prefill Injection Device"		
Application	High speed processing of UniJect devices in a clean room		
Infeed	Manual feeding of rolls into machine		
UniJect Size	0.3 ml - 2 ml		
Filling heads	4-lane	6-lane	12-lane
Output (Syringes/min.) depending on product characteristics, fill volume and filling system	up to 120 syringes/min.	up to 150 syringes/min.	up to 300 syringes/min.
Machine dimensions (L x W x H)	2,100 x 1,800 x 1,900 mm	2,300 x 1,800 x 1,900 mm	2,300 x 1,800 x 1,900 mm
Machine finish	Stainless steel and hard coated aluminium		
Working height	1,000 mm +/- 30 mm		



Type VKVM 3000

The machine is available as a stand-alone model or integrated in a complete line.

Functional operation:
A machine that encompasses: the infeed of stoppers, insertion of stoppers, pre-filling, final filliing with product retraction device, pick-up of aluminum caps and crimping. Several control functions are available.

Two-lane discharge into trays or reject station for improperly processed cartridges – fail/safe system.

Technical Data:

Type	VKVM 3000
Machine description	Fully automatic filling and closing machine
Containers	One chamber cartridge Double chamber cartridge
Infeed	Inclined chute / Scroll (Stand Alone) Vibratory table / scroll (Line)
Filling volume	0.1–3 ml
Container size range	One chamber cartridge 1.5 and 3 ml Double chamber cartridge 3 ml
Output (Containers/h.)	up to 3,600
Operators	1

Denesting
Denester to Process Syringes

Denester to Process
Nested Syringes

The aseptically filled and stoppered syringes are automatically removed from the nest and placed into a discharge track. The tub can be placed manually or automatically onto the infeed conveyor of the machine. The following process is fully automated. The empty nest is transported by means of an intermittent conveyor belt to the stacking device and automatically stacked. The tubs and nests in the stack are then manually removed. Discharge can be one or two laned.

Denester to Remove
Syringes from Rondo Trays

The syringes are automatically removed from the tray and placed onto a discharge track. The Rondo tray stacks are placed manually on the infeed conveyor belt of the machine. The following process is fully automated. The Rondo trays are automatically destacked. Each tray is transported past the removal station utilizing a carrier device and the syringes are removed into a discharge track. The empty Rondo trays are automatically stacked and transported onto a discharge conveyor belt.

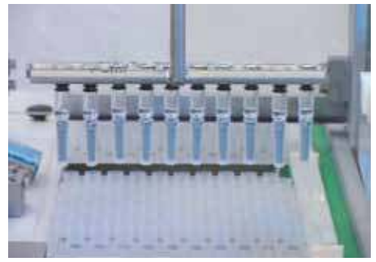
Denesting
Technical Data

Technical Data: Denester Tubs

Type	SH 110	SH 120	SH 210	SH 230	SH 260
Machine description	Fully-automatic Denester				
Syringe systems	Nested syringes				
Application	Sterile, filled and closed syringes (without plunger rod), as well as sterile, empty syringes				
Infeed	Manual infeed in tubs		Automatic infeed in tubs		
Syringe size range	0.5-20 ml				
Output (syringes/h) depending on syringe size and nest configuration	up to 7,200 syringes	up to 12,000 syringes	up to 12,000 syringes	up to 24,000 syringes	up to 36,000 syringes

Technical Data: Denester Rondo Trays

Type	TD 210	TD 230	TD 240
Machine description	Fully-automatic Denester		
Syringe systems	Syringes in Rondo trays Safety Device		
Application	Sterile, filled and closed syringes (without plunger rod), as well as non-sterile and unfilled syringes		
Infeed	Semi-automatic infeed		
Syringe size range	0.5 ml-20 ml		
Output (syringes/h) depending on syringe size and Rondo tray configuration	Max. 10,000	Max. 18,000	Max. 24,000



Renesting
Renester to Insert Syringes

Fully-Automatic Renesting Machine for Nested Syringes
The completely processed syringes are manually or automatically inserted into the nests. The syringes are fed single-lane into an oval transport system and are spaced out respectively to fit the arrangement of the syringe nest. For the single-lane nest transport, the oval stops shortly to take out a row of format dependent syringes by means of vacuum. For the two- and three-lane nest transport 2 or 3 grippers take out one row of syringes out of the continuously running oval transport. The grippers work independently and the syringes are inserted in separetely centered nests.

Fully-Automatic Renester to Insert Syringes into Rondo Trays
Using the fully-automatic renester, the syringes, which are fed with the aid of a feeding track and infeed wheels, are inserted into Rondo trays. The empty Rondo tray stacks are manually placed onto the infeed conveyor belt. The Rondo trays are automatically destacked. Each Rondo tray is transported past the inserting station utilizing a carrier device, and the syringes are inserted into the Rondo trays. The filled Rondo trays are automatically stacked and transported onto the discharge conveyor belt.

Renesting
Technical Data Renester Tub

Technical Data: Renester Tub

Type	SN 220	SN 240	SN 260
Machine description	Fully-automatic renester		
Syringe system	Nested syringes		
Application	Nesting of empty syringes e.g syringe manufacturing and filled and closed syringes. With and without label or plunger rod.		
Infeed	Automated, single laned infeed of single syringes		
Nest infeed	1-lane	2-lane	3-lane
Syringe size range	0.5 ml to 20 ml Additional syringe size upon request. Maximum tub height: 163.5 mm		
Output (syringes/h) depending on syringe size and Rondo tray configuration	up to 15,000	up to 24,000	up to 36,000

Technical Data: Renester Rondotrays

Type	TR 210	TR 230	TR 240
Machine description	Fully-automatic renester		
Syringe system	Syringes in Rondo Trays		
Application	Sterile, filled and closed syringes (without plunger rod), as well as non-sterile and unfilled syringes		
Infeed	Semi-automatic infeed		
Syringe size range	0.5 ml to 20 ml		
Output (syringes/h) depending on syringe size and nest configuration	up to 10,000	up to 18,000	up to 24,000

Labelling / Plunger Rod Insertion

Continuous or Intermittent

Continuous Motion Labelling Machine
The economical, compact solution for medium and large batches. This machine processes all common glass and plastic syringes from 0.5 to 20 ml. The syringes are transported into the continous motion transport star-wheel using an inclined infeed and an infeed wheel. At the labelling station the syringes are rotated using a roller band and the labels are glued on. A camera detects the presence of the label. On the label dispenser a second camera controls the correct print of the label. Then, the syringes are distributed via two vacuum wheels into the discharge / reject.

Intermittent Operation Labelling and Plunger Rod Inserting Machine
The economical, compact solution for small batches. This machine processes all common glass and plastic syringes from 0.5 to 20 ml. The filled and closed syringes are transported into the transport star-wheel by means of a linear feed-track. At the inserting station the plunger rod is removed from the inclined feed-track using grippers and inserted into the rotating syringe. At the following station the assembled syringes are labelled. On the label dispenser a second camera controls the correct print of the label. Incorrectly processed syringes are rejected.

Fully-Automatic Finger Flange Assembly, Plunger Rod Inserting and Labelling Machine, Type EKM
Three functions integrated into one machine. The machine is designed to assemble finger flanges, insert plunger rods and label all common glass and plastic syringes. Syringe size processing range: from 0.5 to 20 ml.

Fully-Automatic Labelling and Plunger Rod Inserting Machine with Backstop Assembly, Type EK/CM
Labelling, plunger rod insertion and backstop assembly integrated into one machine. The economical compact solution for small batches. This machine processes all common glass and plastic syringes from 0.5 to 10 ml.

Labeling, plunger rod insertion machine with safety device and finger flange assembly Model EKCS
Compact machine with multifunctional processing of various components and continuous force measurement at the assembly stations.

Continuous Operation Labelling and Plunger Rod Inserting Machines, Type EKK
The economical and compact solution for medium and large batches. These machines continuously process all common glass and plastic syringes.
Syringe size range:
EKK 62: from 0.5 ml to 50 ml
EKK 182: from 0.5 ml to 10 ml

Backstop Assembly

Fully-Automatic Backstop Assembly Machine

The working principle is either intermittent (CM 4) or continuous motion (CM 18). The syringes are directly fed into the machine via a chute to guide syringes directly into the infeed star-wheel.

While transfering the syringes from the transfer star-wheel into the main star-wheel the back stops are assembled onto the finger flange of the syringe.

The sorting/orientation of the backstops is done by means of a sorting bowl. The backstops are transported onto a rail to the point of assembly. The assembled syringes are guided out of the main star-wheel for further processing.
CM 4: The fully assembled syringe is pushed laterally out of the starwheel into the discharge chute.
CM 18: The fully assembled syringe is pushed tangentially into the discharge starwheel.

Backstop Assembly

Technical Data

Type	ESK 91	EK 321	EKM 321 EKM 331	EK 321/CM 4 CM 4/EK 321	EKCS	EKK 62	EKK 182	CM 4/CM 12/ CM18	EKK 62/CM 12
Machine description	Labelling machine	Labelling and plunger rod inserting machine	Finger flange assembly, plunger rod inserting and labelling machine	Labelling and plunger rod inserting machine with backstop assembly	Labeling and plunger rod insertion machine with safety device and finger flange assembly	Labelling and plunger rod inserting machine		Backstop assembly machine	Labelling and plunger rod inserting machine with backstop assembly
Mode of operation	Continuous	Intermittent				Continuous		Intermittent (CM 4) Continuous (CM 18)	Intermittent
Syringe systems	all common syringes								
Syringe size range	0.5 ml – 20 ml	0.5 ml – 10 ml (20 ml)	0.5 ml – 20 ml	0.5 ml – 10 ml	0.5 ml – 10 ml	0.5 ml – 20 ml (50 ml)	0.5 ml – 5 ml (10 ml)	0.5 ml – 5 ml (10 ml)	0.5 ml – 20 ml (50 ml)
Output (syringes/h)	36,000	4,000	3,600	4,000	3,600	12,000	36,000	4,000 (CM 4) 12,000 (CM 12) 18,000 (CM 18)	12,000
Product infeed	Inclined infeed track or linear feed track		Inclined infeed track	Inclined infeed track or linear feed track		Inclined infeed track			Inclined infeed track or linear feed track
Backstop/Finger flange infeed	-		Finger flange infeed with linear feed track	Backstop infeed with linear feed track		-			Backstop infeed with linear feed track
Plunger rod infeed	Inclined infeed track					Inclined infeed track			Inclined infeed track
Syringe discharge	Inclined discharge track					Inclined discharge track			Inclined discharge track
Working direction	Clockwise					Counter clockwise			Clockwise
Operators	1								
Space requirements	3 m²	4 m²		4,5 m²		4 m²			

Safety Device Assembly

The VSM is an assembly and labelling machine for safety devices and is available in three different ranges of performance.
The safety devices are fed into the machine using an infeed chute. Depending on the product, they are carried over by a single or double scroll, separated, and fed to the first labelling star-wheel. The label dispenser can be equipped with different print and control systems, depending on the customer's requests. Then, the safety devices are transported to the assembly star-wheel.

The syringes are also fed into the machine using an infeed chute and separated using an infeed wheel. The cam-controlled grippers pick the syringes and insert them into the devices. Then, the safety devices are transported to the insertion star-wheel. The syringes and plungers are completely pushed into the devices. To ensure exact insertion of the syringes, they are centered in the star-wheel via grippers. Then, the syringes are fed using two vacuum wheels to the discharge or reject stations. Manual safety device systems are available upon request.

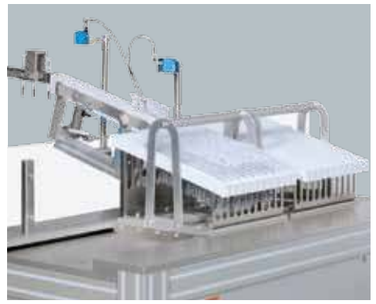
Safety Device Assembly
Technical Data

Type	VSM 1200	VSM 1800	VSM 2400
Machine description	Fully-automatic assembly machine for safety devices		
Mode of operation	Continuous		
Syringe systems	All common syringes		
Safety device system	All common safety devices		
Size range	Depending on safety device system		
Output (syringes/h)	12,000	18,000	24,000
Syringe infeed	Inclined feed track		
Safety device infeed	Inclined feed track		
Safety device discharge	Inclined feed track		
Working direction	Counter clockwise		
Operators	1		
Space requirements	3 m² (6 m² with 2 dispensers)		

Syringe Accumulator

SP 300/600/900
Syringes are fed into a tray loading sytem using a star wheel. The tray is filled row by row. The nest moves perpendicular to the infeed, with the row in front of the infeed being filled before shifting to the next row. The individual lanes are filled and emptied by gravity, controlled by a discharge finger and an accumulation sensor.

SP 2000/3000
Syringe accumulation buffer – first-in, first-out principle. The syringes are fed into the accumulation racks by gravity or pushed in and out of the rack mechanically. Empty racks descend below the machine plate and are cycled back to the infeed.



Type	SP 300	SP 600	SP 900	SP 2000/3000
Machine description	Syringe accumulator			
Syringe types	Syringes from 0.5 ml to 50 ml. Max. length of syringes: 140 mm. Additional syringe types upon request			
Application	Sterile filled and closed syringes, as well as sterile, unfilled syringes			
Output	up to 300 syringes	up to 600 syringes	up to 900 syringes	up to 3,000 syringes

Syringe Transport System / Paternoster System

Syringe Transport System
The syringe transport system can be utilized as an infeed or discharge conveyor belt. Furthermore, it can be used to connect individual machines. Differences in height can be compensated with an infinitely adjustable crossing angle.

Paternoster System
The paternoster system was developed for the optimization of complete turn-key lines to provide operators a passageway under the tub transport. The paternoster is available in various designs and sizes.

Type	STS	STS-0
Machine description	Syringe transport system	
Syringe systems	Syringes 0.5 ml - 50 ml. Max. length of syringes: 160 mm. Additional syringe systems upon request	
Application	Sterile, filled and closed syringes as well as sterile, empty syringes. Very suitable for bridging different heights	Suitable for horizontal syringe transport and built to provide for syringe accumulation
Length	1,000 / 1,200 / 1,500 / 2,000 mm Further length upon request	1,000 mm Further length upon request

Clean Production
Triple Protection

Triple protection
Clean room technology provides the basis to ensure a safe production environment for filling sterile drugs.

The filling technology provides for the precise dosing of drug products under the aspect of sterile product handling. Optima Pharma unites the required clean room technology with the state-of-the-art filling technology to help you market a high-value pharmaceutical product. The portfolio of Optima Pharma and the brands Inova and Metall + Plastic offer three different technical air protection systems:

- ▶ Restricted Access Barrier System (RABS)
- ▶ Closed Restricted Access Barrier System (C-RABS)
- ▶ Isolator

Clean Production

At first glance, all three systems work as a clean room micro plant. But as far as technology and regulation are concerned, the differences are quite considerable and have to be assessed for each individual project. We would be happy to recommend the correct protection system suitable for your application.

Restricted Access Barrier System (RABS)

To restrict the operator access to the process area, our filling machines can be provided with RABS equipment as an option. The restricted access is in this case achieved by glove systems, and mock-up studies are used to determine in advance the gloves' positions.

Closed Restricted Access Barrier System (C-RABS)

Ventilation concept
The required process air is taken from the machine environment and filtered by means of a HEPA filter. Variable speed-controlled ventilators supply constant air volume to the unit. Air distribution is achieved by means of a plastic diaphragm, which ensures uniform air distribution in the protected area with little turbulence.

System description/technical module
The technical module consists of high-quality stainless steel materials and is located above the protection module. It contains the complete technical air equipment, such as ventilators, filters, cleanroom illumination and air distribution diaphragm.

Isolator

Protection module
The protection module consists of high-quality stainless steel materials. Doors, windows and other functional elements are integrated into the modular sectional framework, as required for the individual machine. Intervention in the protection module is achieved by means of glove accesses that are integrated into the glass doors (tempered safety glass (ESG).

Possible operation parameters
- ▶ Air speed
- ▶ Pressure regulation (option)
- ▶ Air temperature (option)
- ▶ Humidity

Filling and Closing Machine
for Nested Syringes, Vials and Cartridges

Flexibility and standardization combined

A new type of filling and closing machine:
The Multiuse Filler OPTIMA H4 covers a great number of diverse applications. At the same time OPTIMA H4 fulfills the customer wish for simple operation, ease of accessibility, reliability and low space requirement.

Syringes
0.5–20 ml

Vials
up to **50 ml**

Cartridges
3 ml

Containment:
All systems – **oRABS / cRABS / Isolator** –
can be economically mounted on the standardized machine table top plate.

High speed machine technology and design

Modular and cost optimized

OUTPUT:
Up to **36,000**
objects/hr., extendable

Easy retrofit of: vacuum filling and stopper insertion IPC

High-tech functions contribute to overall flexibility for the fundamental concept for the system. Extensive standardization in the development of OPTIMA H4 allows the pre-manufacture of modules, resulting in time and cost benefits. Nested vials, syringes and cartridges are all processed.

Automatic opening of Tyvek® lid and liner removal can be integrated if required. Space for the robot is foreseen on the filling machine, thereby saving space. Semi-automated systems can also be integrated. There is also freedom of choice in respect of containment: Regardless whether oRABS, cRABS or isolators, all systems can be economically fitted to the standardized machine baseplate at low cost. For filling, a ten-position system is provided. For filling flexibility and simple format changes, rotary pistion pumps as well as peristaltic or time-pressure filling systems can be added and at any time.

The transport system of OPTIMA H4 originates from high performance machinery. It has been simplified mechanically but nevertheless ensures even and particularly careful handling of the containers. A high output rate of up to 24,000 objects/hr. is achieved. Retrofitting can also expand output up to 36,000 objects/hr. The same applies to upgrading of in-process control (IPC), vacuum filling and vacuum stopper inserting. Both can be supplemented at a later date without requiring changes to the machine baseplate.

INOVA

Processing line for carpules, consisting of VWM 218, SHT, VKVM 3041

Dosing volume

0.2–50 ml

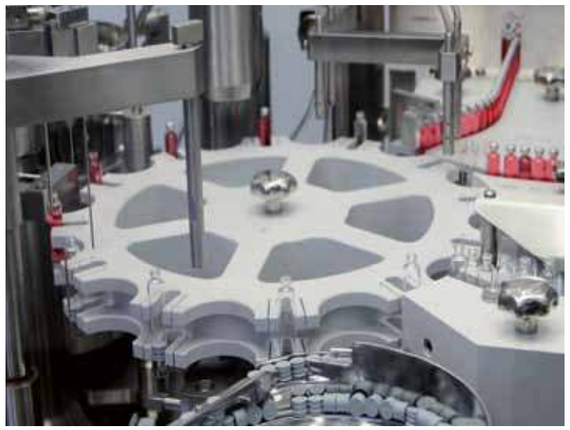
Output

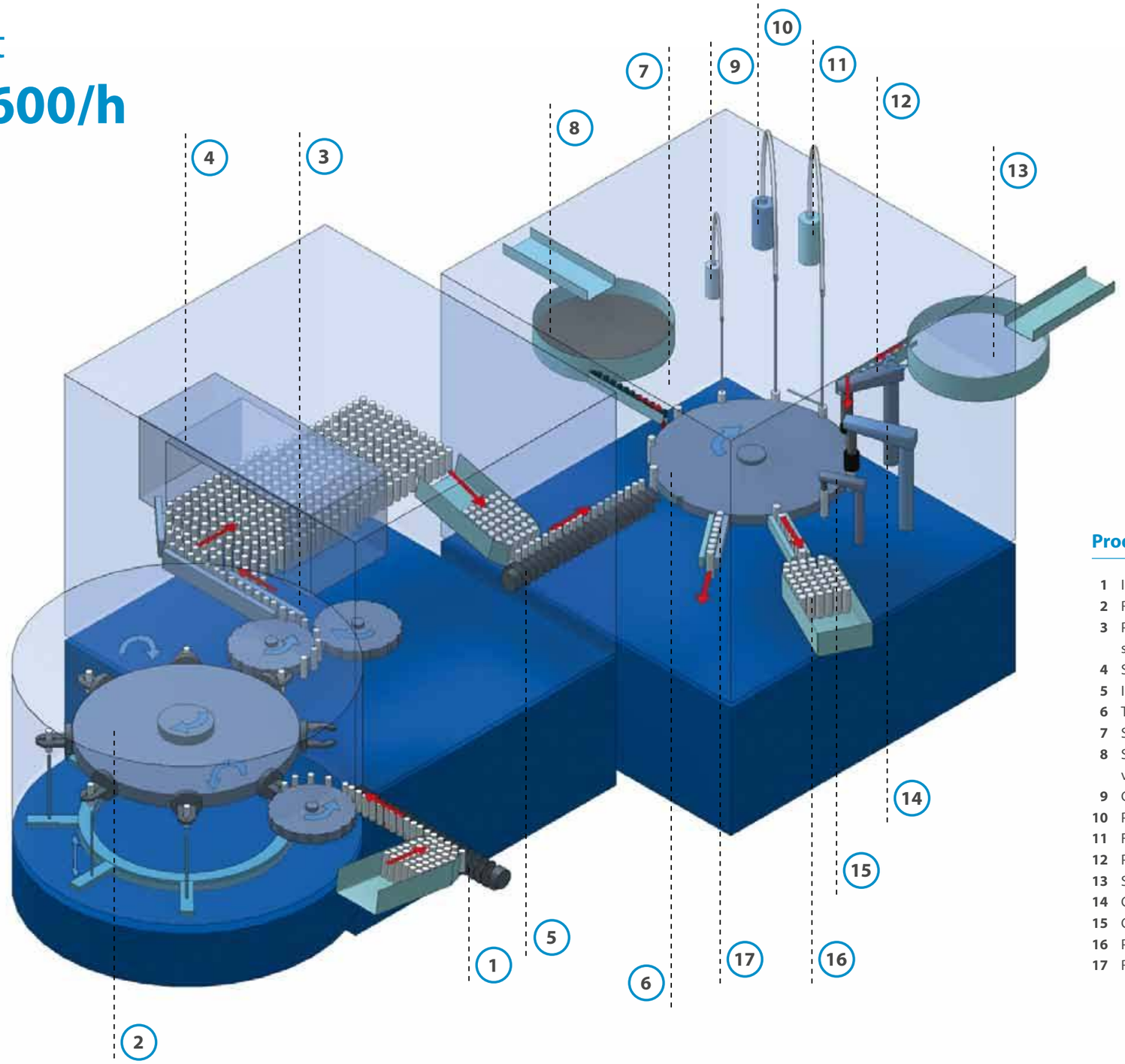
up to **3,600/h**

RABS

Features

- Smooth handling of the cartridges
- Feeding system for stoppers and caps
- Pre gas flushing / pre filling
- Sorting of stoppers in one direction
- Final filling with sensors
- Pick and place crimp cap
- Blocked needle testing





Production process

1 Infeed scroll
2 Rotary washer
3 Product infeed sterilizing tunnel
4 Sterilizing tunnel
5 Infeed scroll
6 Transport star wheel
7 Stopper insertion
8 Stopper feeding via sorting bowl
9 Gas-flushing
10 Pre-filling
11 Final-filling
12 Pick and place crimp cap
13 Sorting crimps caps
14 Crimp station
15 Control station
16 Product discharge
17 Reject

Service

A Comprehensive Service Program

Process reliability is also a question of service. Even the best machines and lines are subject to a certain extent of wear. With our team of experts and the worldwide available service network of the Optima Pharma, you will reduce the risk of machine downtime to a minimum. Additionally, a 24-hour hotline as well as an extensive spare parts supply within a very short time are at your disposal. Electronic spare parts catalogs, comprehensive technical documentation and operating instructions as well as the teleservice, facilitate the competent handling of trouble-shooting. Service already starts when commissioning the machine. The Optima Pharma offers you training specifically adapted to your requirements. Incidentally, it is not always necessary to invest in new machinery.

Innovative machine upgrades and individual retrofitting packages of the Optima Pharma upgrade your machines to the state-of-the-art. Ask us for a service package meeting your requirements. It will be our pleasure to assist you.

Contact Us

The Safety of a Strong Partner

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