ADAPTA 50

MEDIUM SPEED CAPSULE FILLING MACHINE

IMA ACTIVE

Solid Dose Solutions

ADAPTA

The new ADAPTA 50 synthesizes all the best of IMA Active competences in capsule filling. While designing this machine, IMA scouted for new technical solutions, improved the handling of difficult products, tested innovative algorithms and feedback loops to enhance the in-line control of critical quality and performance attributes. The result is a machine unique on the market that further underscores the hallmarks of the acknowledged ADAPTA 100 and 200 capsule fillers.

TOTAL IN-PROCESS CONTROL

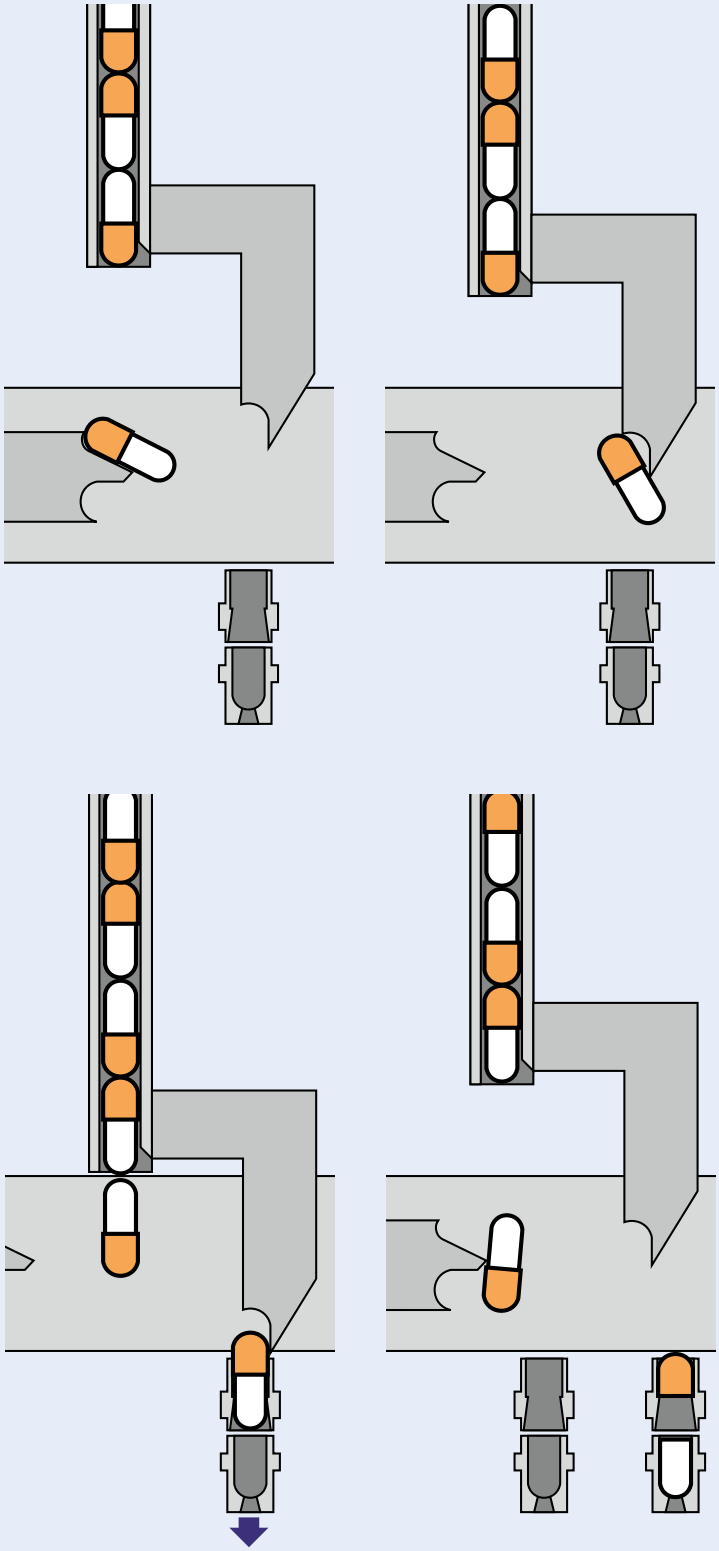
Total production control can be achieved with any product dosage.

- Control of minitablets quantity. Rejection of out of limit capsules.
- Statistical weighing unit for samples gross weight check. Automatic feedback on machine parameters.
- Weighing unit for 100% gross weight check. Rejection of out of limit capsules and automatic feedback on machine parameters.

EXCEPTIONAL DESIGN FLEXIBILITY

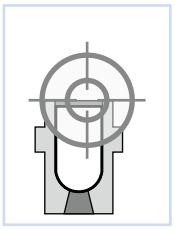
ADAPTA is designed to dose up to 3 products in the same capsule. Its dosing units can be easily removed and are reversible/ interchangeable, giving the possibility of a plug-and-play shift between different machine configurations and filling combinations.

ADAPTA WORKFLOW



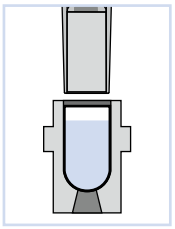
1 CAPSULE INFEED AND OPENING

The capsule arriving from the infeed hopper is accurately positioned and inserted into the bushings, where the cap is removed from the body by means of a vacuum.



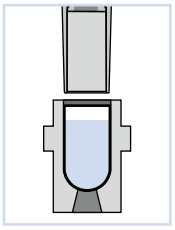
2 FLEXIBLE STATION

Available for size changeover and additional controls.



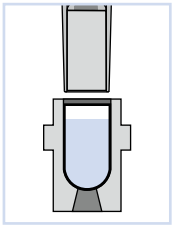
3 DOSING STATION (REMOVABLE)

This station is available to fit a removable dosing unit (pellets, tablets, minitablets, liquids).



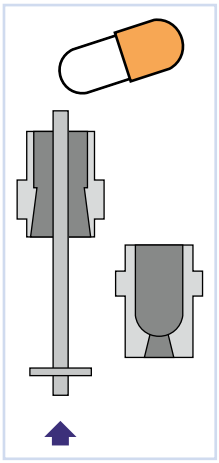
4 DOSING STATION (REMOVABLE)

This station is available to fit a removable dosing unit (pellets, tablets, minitablets).



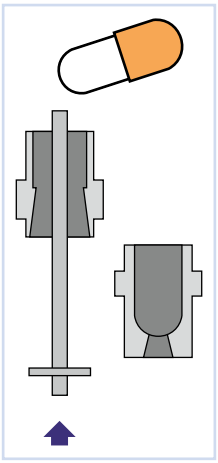
5 POWDER DOSING STATION

This station is available to fit a powder dosing unit or other removable dosing units (pellets, tablets, liquids).



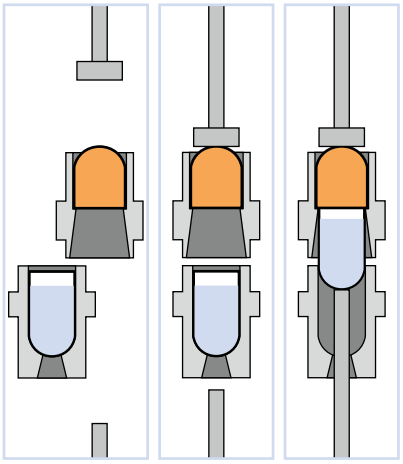
6 UNOPENED CAPSULE SELECTION AND REMOVAL

Any unopened capsule are rejected by means of appropriate pushers.



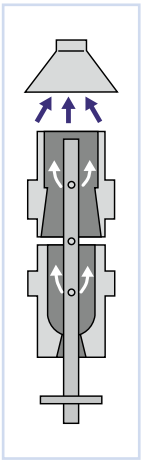
8 CAPSULE DISCHARGE

Closed capsules are discharged by the combined action of pushers and compressed air. A conveyor chute transports the capsules towards the finished product container.
A statistical or weighing unit can be installed at capsule exit for gross weight control.



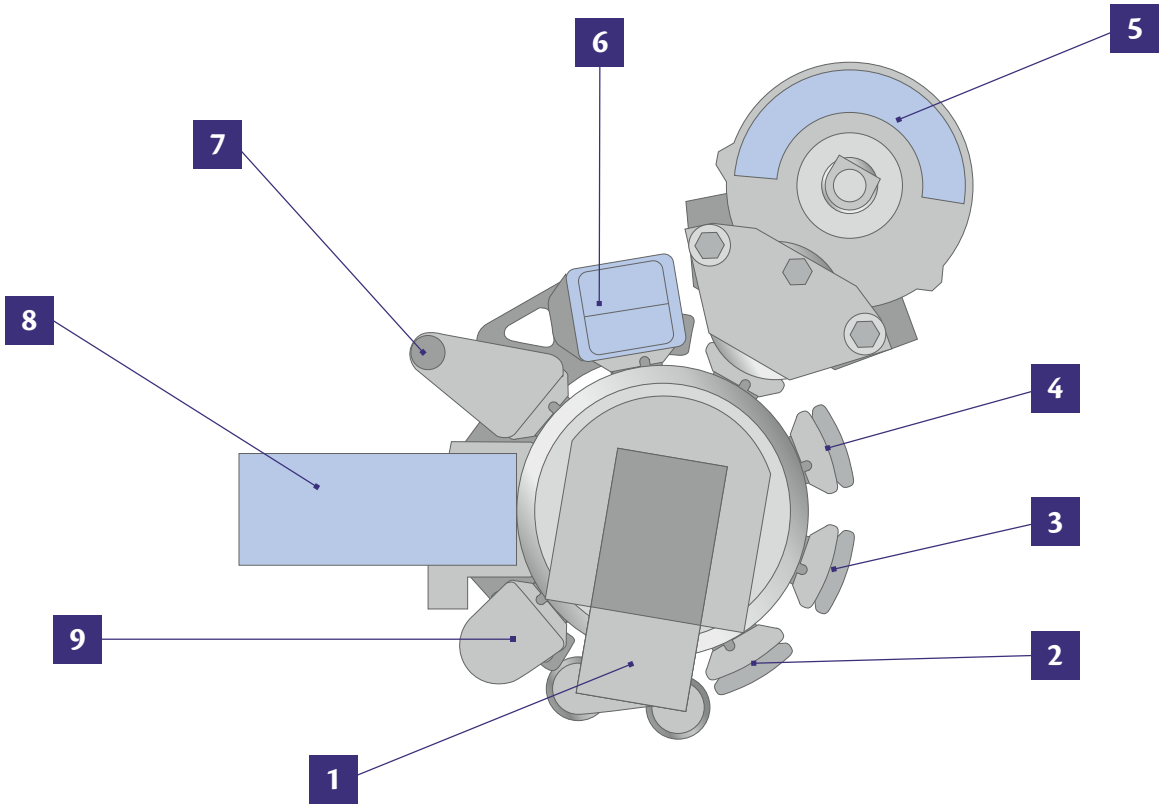
7 CAPSULE CLOSING

The bushings containing the capsule bodies realign themselves with the corresponding caps; the capsule is then closed by appropriate pushers.



9 BUSHING CLEANING

Upper and lower bushings are cleaned of any residual dust by means of compressed air and suction nozzles.



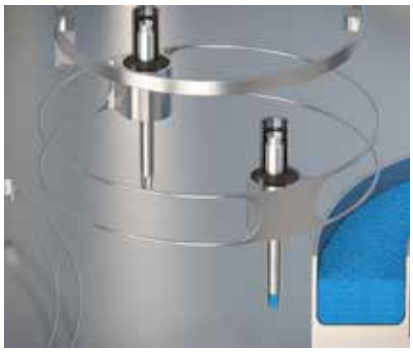
ADAPTA DOSING UNITS

POWDER DOSING UNIT

Dosators are mounted on one block and are sited in two opposite segments.

1. The block moves down and the dosators on the first segment penetrate the powder layer inside the product bowl, while the opposite ones are positioned above the capsule bodies.
2. The pistons of the first segment compress the powder forming slugs; the opposite ones eject the powder slugs into the capsule bodies.
3. The block moves up and turns; dosators with slugs are positioned over the next capsule bodies, while the empty ones are positioned over the product bowl and the cycle begins once more.

In addition to the rotary bowl fitted on standard machines, the IMA patented vacuum bowl can be supplied for powder pre-compacting if very fine powders have to be dosed. Additional solution for powder dosing can be customised upon request.



PELLET/MINITABLET DOSING UNIT

The dosators penetrate in the pellet layer inside the bowl and the product is picked up by suction. Dosing precision is enhanced by soft linear motor movements which can ensure tailored set-up for each product and minimum product losses even at high speed. Excess product is eliminated thanks to the combination of:

- syringe effect when piston is retracted
- thin blade of silicon scraping the dosators' tip

Product is then dosed into the capsule body by stopping vacuum and lowering the piston.

The entire group is placed over the machine plate and it is removable with the plug-and-play ADAPTA concept.

Excess pellets are removed by a soft system particularly suitable for minitablets and delicate coating.

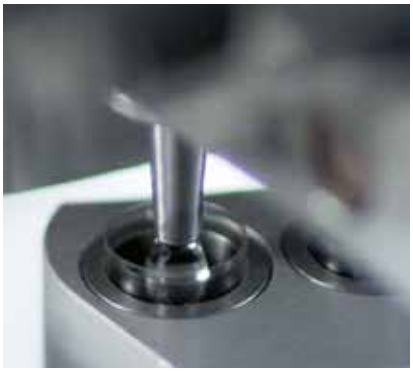
ADAPTA DOSING UNITS

Tablet dosing unit

Tablet feeding hopper

TABLET/CAPSULE DOSING UNIT

The tablet dosing group is placed over the machine plate and it is removable with the plug-and-play ADAPTA concept. The unit can introduce one or more tablets into the capsule body in one stroke, using a blade and suitably-shaped feeding tubes. The filling phase is electronically monitored by a sensor which checks the tablet presence while dosing and the tablet absence upon blade return. In case of any malfunction, the machine stops.



Liquid dosing

LIQUID DOSING UNIT

The group uses an extremely precise volumetric dosing system composed of a series of syringes, drawing liquid from the container and pushing it into the capsule bodies.
The syringes are rotating 180 degrees to alternatively pull out the liquid from the container and then push it to the outlet tubes.
The liquid dosing group is removable with the plug-and-play Adapta concept.
The parts in direct contact with the product can be separately disassembled as well.
The liquid can be dosed before or after other products and it is possible to lift up the capsule body and then lowered down during the dosage to avoid liquid spillage.

Minitablet dosing unit

Camera for minitablet presence checking

MINITABLET DOSING UNIT WITH EXACT COUNTING AND CHECK

The unit is composed of one wheel with a continuous perforation; holes are tailored on dimensions of minitablet.
A single minitablet is pulled in the hole by vacuum.
The minitablet is discharged directly into the capsule, by release of vacuum and use of crush-less mechanical ejector, particularly helpful in case of electrostaticity.

The dosing wheel motion is accurately controlled so that only the required amount of minitablets is dosed into the capsule; the system allows extreme flexibility in defining exact minitablets quantity, with no need to change wheel.

ADAPTA

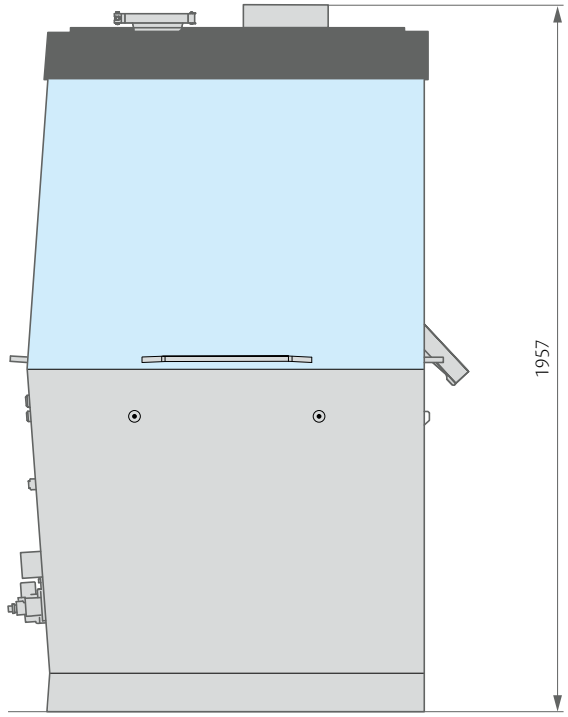
COMPACTNESS AND CLEANABILITY

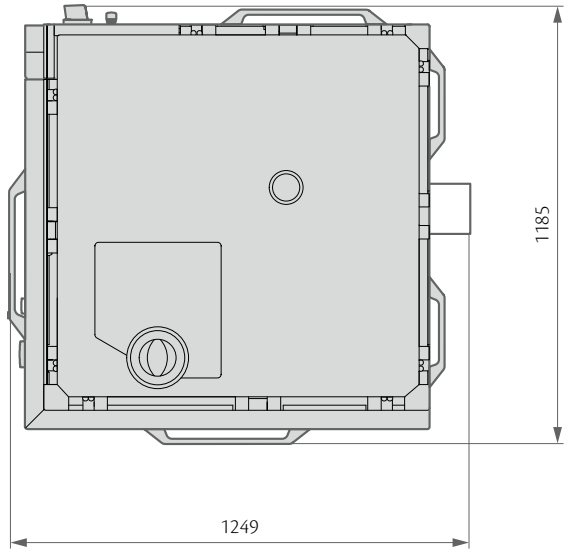
Inside the processing area, positioned at the center of the transport plate, the capsue infeed unit is fully visible while the process in ongoing. Easy inspection results in superior quality of the final pharmaceutical product. This smart design also leads to quicker cleaning and maintenance operations.

CONTROL SYSTEM

ADAPTA 50 IS FITTED WITH MAX, THE NEW CORPORATE HMI. THE NEW UX DESIGN PLAYS A STRATEGIC ROLE IN IMPROVING OPERATOR EFFICIENCY, WHILE ENSURING PROMPT RESPONSIVENSS, ENHANCED PREDICTABILITY AND EASY LEARNING. THE RESULT IS AN HMI THAT TRULY MEETS THE OPERATORS' NEEDS. THE UNDERNEATH KORTEX, AN IFIX-BASED SCADA, IS DESIGNED TO BE IOT READY, FOR AN EASIER AND DEEPER CONNECTION WITH A SUPERIOR LAYER, INTRA- OR INTER-PLANT.

TECHNICAL DATA





Maximum output (capsules/hour)	50,000
Number of capsules per cycle	7
Capsule size	5-000, DB E-AA
Maximum installed power (kW)	12.5 kW
Aspiration	4,800 litres/minute - 3,100 mm H_2O
Compressed air	100 litres/minute - 6 bar
Vacuum	100 m^3/h – 3 mbar (abs.)
Standard voltage	400 V – 50 Hz
Weight (kg)	1,300

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