

ADAPTA

THE EVOLVING CAPSULE FILLER



ADAPTA

The Adapta's DNA has its roots in IMA's 50 years of experience and more than 5,000 capsule filling installations world-wide. This knowledge and experience have allowed the IMA capsule fillers to evolve and adapt to the ever changing requirements of the market. Multi product dosing at high speed, extremely flexible configuration, 100% control of gross and/or net weight are the hallmarks of a machine which is unique on the market.





EXCEPTIONAL DESIGN FLEXIBILITY

The 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. Upon request the machine can be configured to fill up to 5 different products in the same capsule. Inimitable flexibility, never seen before in the world of capsule filling.

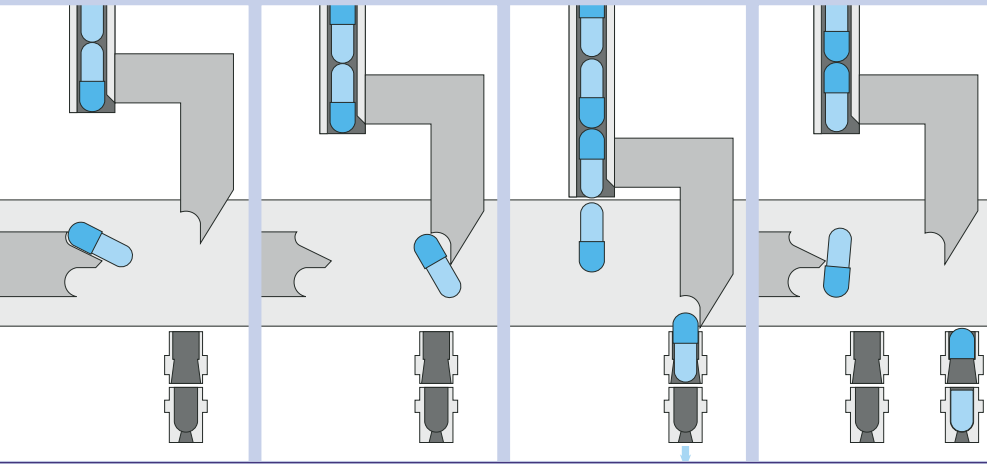


TOTAL IN-PROCESS CONTROL

With the appropriate options, total production control can be achieved with any product dosage. Indisputable efficiency.

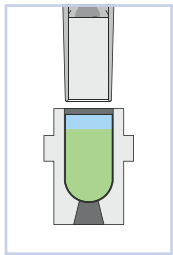
- Strain gauges for 100% net weight control of powder dosage. Rejection of out of limit capsules.
- LVDT for 100% net weight control of pellets dosage. Rejection of out of limit capsules.
- Camera for 100% control of microtablets quantity. Rejection of out of limit capsules.
- Statistical weighing unit for statistic gross weight check. Automatic feedback on machine parameters.
- Weighing unit at machine outlet for 100% gross weight check. Rejection of out of limit capsules and automatic feedback on machine parameters.
- Weighing unit at machine inlet and outlet for 100% net weight check. Rejection of out of limit capsules and automatic feedback on machine parameters.

ADAPTA WORKFLOW



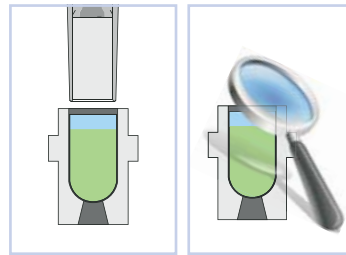
1 CAPSULE INFEEED AND OPENING

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 vacuum. An empty capsule weighing system can be fitted, in case the machine is fitted with 100% net weight check by scale.



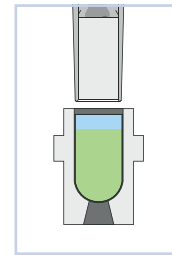
5 DOSING STATION (REMOVABLE)

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



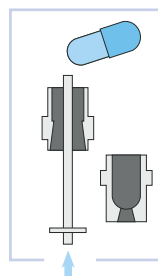
6 DOSAGE CONTROL SYSTEM OR DOSING STATION (OPTIONAL)

This station can be fitted with a 100% in line control of product dosage. Upon request, a product dosing unit can be installed as an alternative.



7 DOSING STATION (FIX OR REMOVABLE)

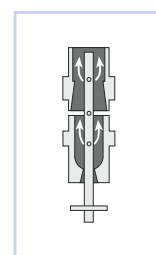
This station is available to fit a removable dosing unit (powder, pellets, tablets, microtablets, liquids) or a fix one (powder, pellets).



11 CAPSULE DISCHARGE

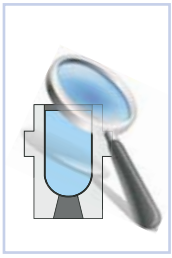
Closed capsules are discharged by the combined action of pushers and compressed air. A conveyor chute transports the capsules towards the finished product container.

A statistical or 100% weighing unit can be installed at capsule exit for gross weight control, or for total net weight control, in combination with the empty capsule weighing system placed in Station 1.

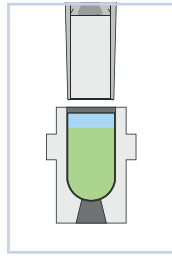


12 BUSHINGS CLEANING

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

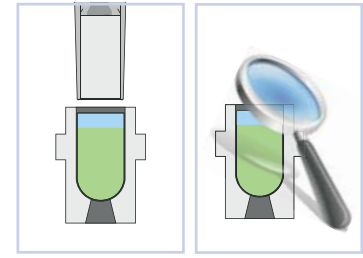


2 CAPSULE PRESENCE CONTROL (OPTIONAL)



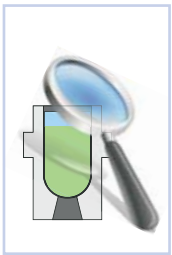
3 DOSING STATION (REMOVABLE)

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



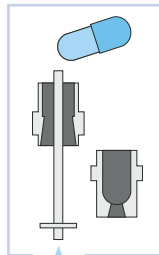
4 DOSAGE CONTROL SYSTEM OR DOSING STATION (OPTIONAL)

This station can be fitted with a 100% in line control of product dosage. Upon request, a product dosing unit can be installed as an alternative.



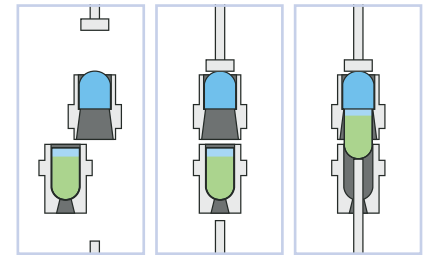
8 DOSAGE CONTROL SYSTEM (OPTIONAL)

This station can be fitted with a 100% in line control of product dosage.



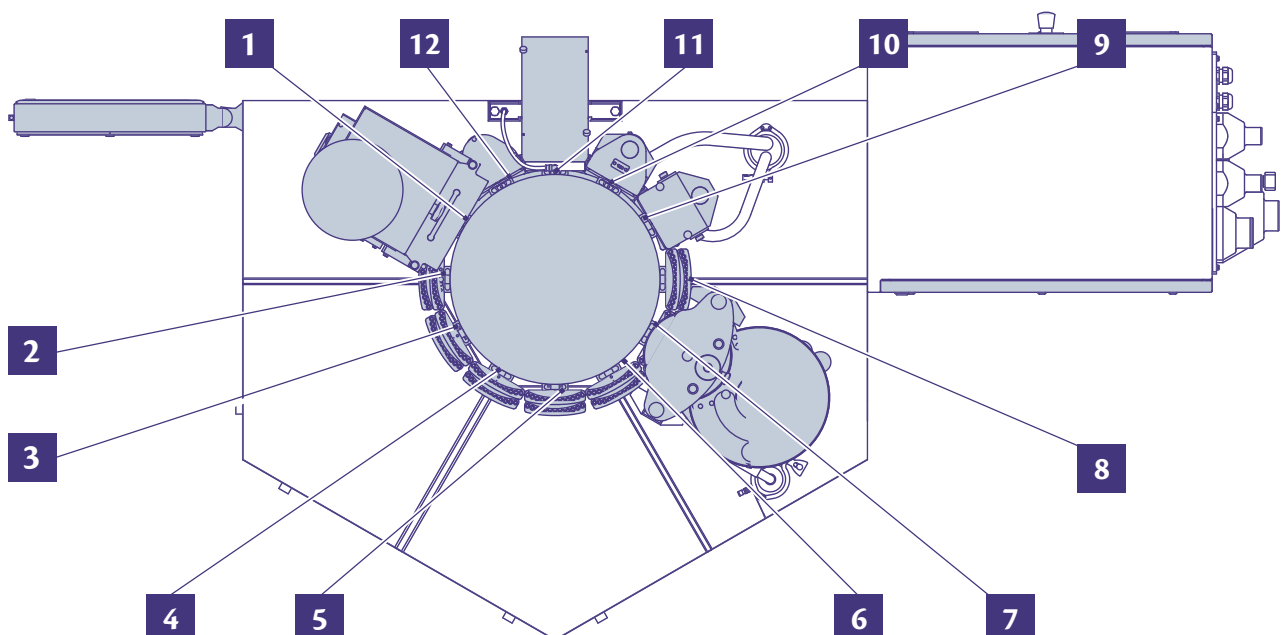
9 UNOPENED CAPSULE SELECTION AND REMOVAL

Any unopened capsule is rejected by means of appropriate pushers.



10 CAPSULE CLOSING

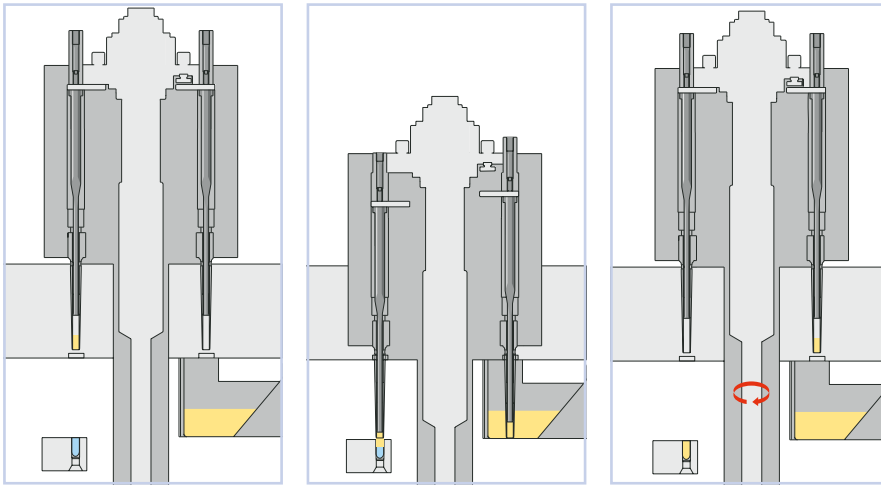
The bushings containing the capsule bodies realign themselves with the corresponding caps, the capsule is then closed by appropriate pushers.



ADAPTA DOSING UNITS

THE ADAPTA COMBINES HIGHLY INNOVATIVE CONSTRUCTION DESIGN WITH IMA'S PROVEN PRODUCT FILLING TECHNOLOGY.





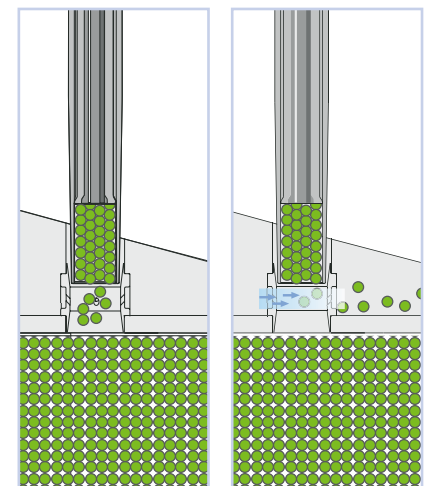
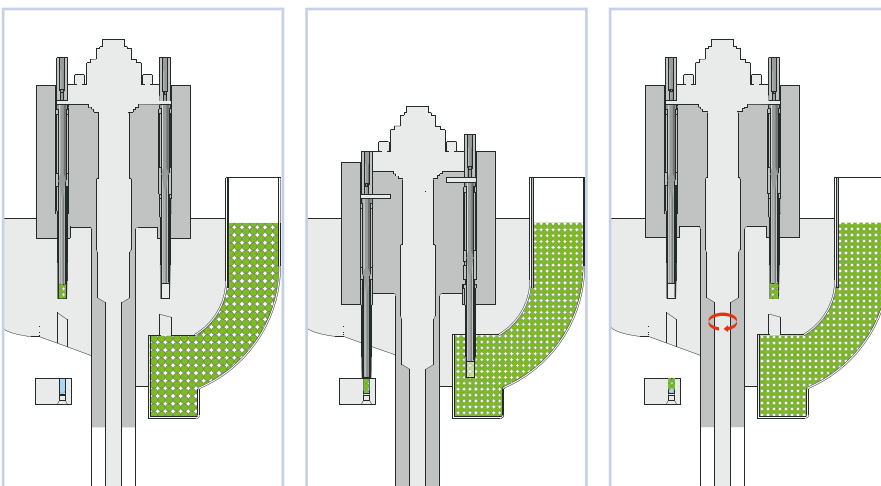
POWDER DOSING UNIT

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 bed inside the product bowl, whilst 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, whilst 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 in case very fine powders have to be dosed.



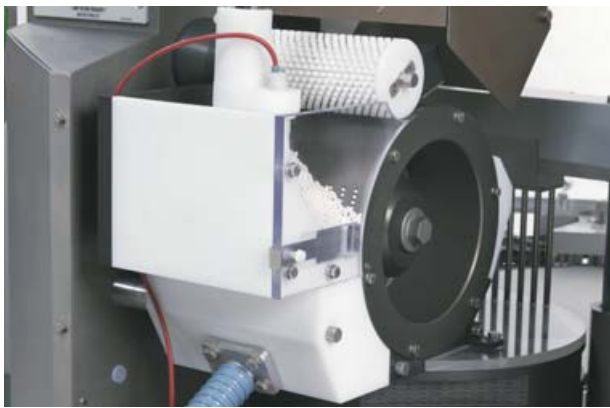
PELLET/MICROTABLETS DOSING UNIT

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 pellet bed inside the product bowl, whilst the opposite ones are positioned above the capsule bodies.
2. The pistons of the first segment create the dosing volume and vacuum force pellets to fill it; the opposite ones eject the pellets into the capsule bodies, the vacuum is released.
3. The block moves up and turns; the dosators filled with pellets are positioned over the next capsule bodies, whilst the empty dosators are positioned over the product bowl and the cycle begins once more.

Excess pellets are removed by a jet of air. This system is particularly suitable for microtablets and pellets with a delicate coating.

ADAPTA DOSING UNITS



MICROTABLETS DOSING UNIT WITH EXACT COUNTING AND CHECK

The unit is composed of:

- One wheel with a predefined number of holes, the dimensions of which are dictated by the size of the microtablets.
- A drum with pushers to take the microtablets inside the capsule bodies.

The microtablets enter into the wheel holes by means of a vacuum and a brush eliminates the excess microtablets. The wheel rotates, the vacuum is cut off and the microtablets fall down into the drum. The product is then dosed into the capsules by gravity fall with the help of pushers which are particularly recommended in case of electrostaticity.

This system allows the exact number/count of microtablets to be filled into each capsule.

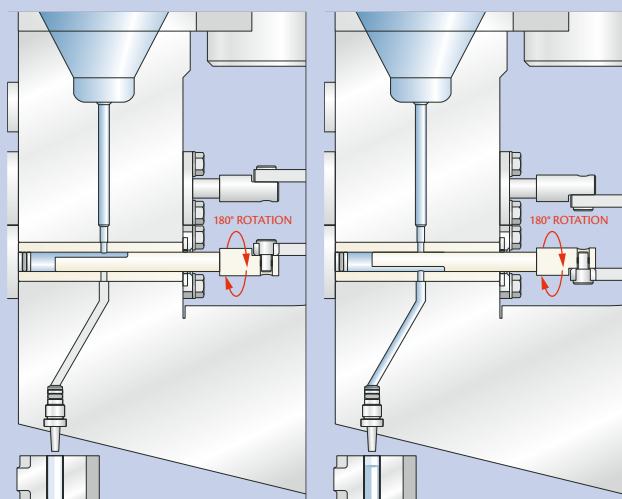
An optional camera can even be installed over the wheel to double check the presence of the microtablets.





TABLET/CAPSULE DOSING UNIT

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/capsule presence whilst dosing and the tablet/capsule absence upon blade return. In case of any malfunction, the machine stops.



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° to alternatively pull out the liquid from the container and then push it to the outlet tubes. The liquid container can be fitted with a mixer and a heating and temperature control system, so that thixotropic or heat sensitive products can be dosed as well as oily substances. The liquid can be dosed before or after other products to avoid its spillage. Available on Adapta 100 only.

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ACCESSIBILITY AND CLEANABILITY

Once the machine windows are opened the working area is completely accessible also making cleaning operations very easy.

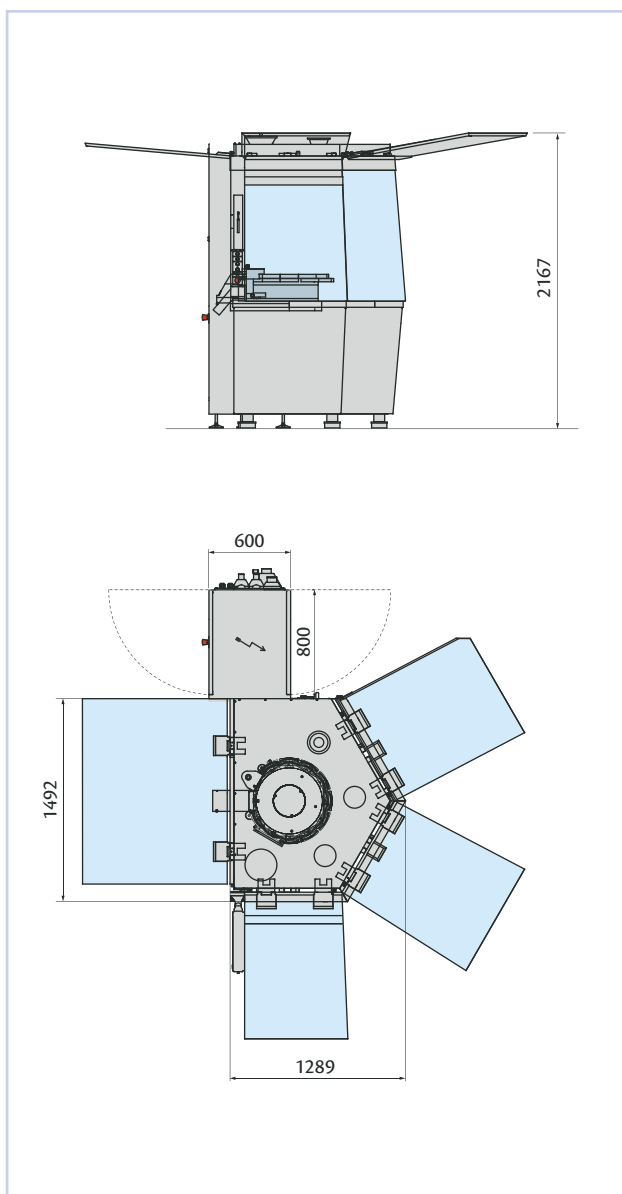


CONTROL SYSTEM

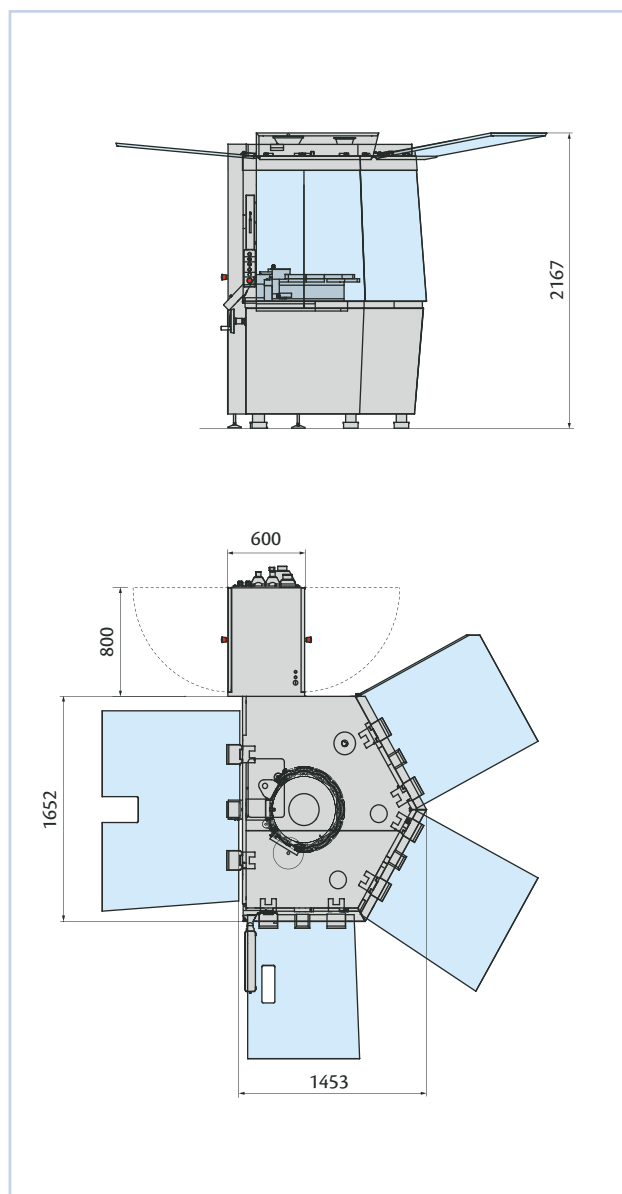
THE ADAPTA IS EQUIPPED WITH A PC BASED CONTROL SYSTEM WHICH CAN BE CONFIGURED ACCORDING TO THE MACHINE CHARACTERISTICS. THE HMI IS INTERACTIVE AND VERY SIMPLE TO USE, DISPLAYING DATA AND MACHINE WORKING PARAMETERS WHILE OFFERING THE PROPER TOOLS FOR COMPLIANCE WITH 21 CFR PART 11 RULES AND GAMP 5 GUIDELINES. THE PANEL CAN BE EASILY POSITIONED TO THE OPERATOR'S NEED.

TECHNICAL DATA

ADAPTA 100



ADAPTA 200



	ADAPTA 100	ADAPTA 200
Maximum output (capsules/hour)	100,000	200,000
Number of capsules per cycle	12	24
Capsule size	5-00, DB, DB.A	5-00, DB, DB.A
Maximum installed power (kW)	17	18
Aspiration	9,500 litres/minute - 3,200 mm H ₂ O	9,500 litres/minute - 3,200 mm H ₂ O
Compressed air	115 litres/minute - 6 bar	115 litres/minute - 6 bar
Vacuum	100 m ³ /h - 3 mbar (abs.)	165 m ³ /h - 3 mbar (abs.)
Standard voltage	400 V - 50 Hz	400 V - 50 Hz
Weight (kg)	1,800	2,000

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