

EVOLVING SOLUTION

(and

32.560065125



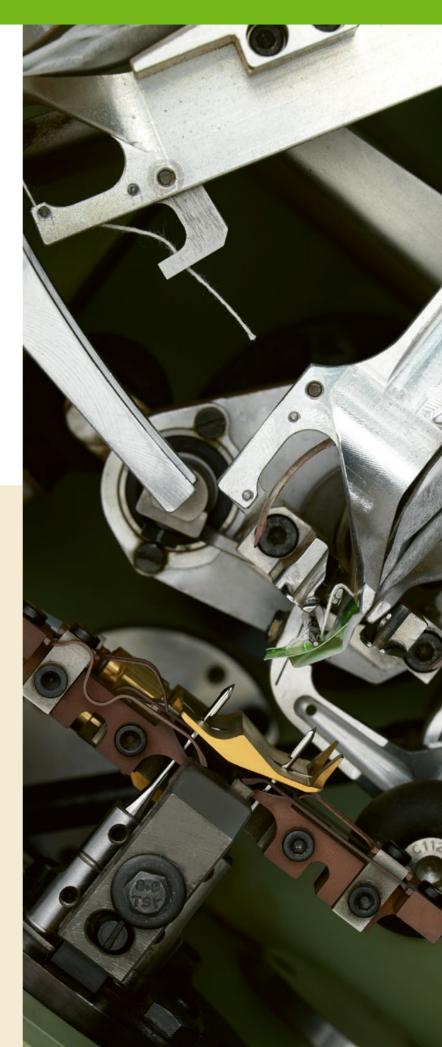
MAN

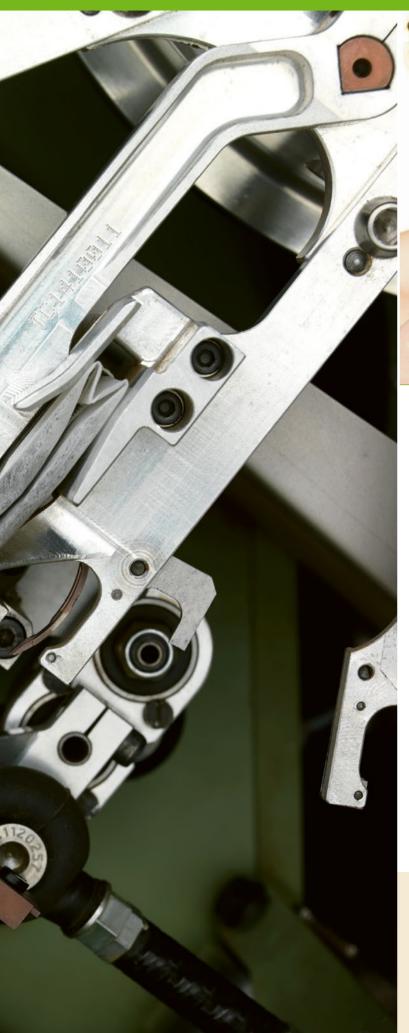
C24-E FLEXIBILITY IN EVOLUTION

Since 1998, the date of birth of the first machine with knot technology, IMA has produced and sold more than 400 machines world-wide.

During these 15 years, IMA has constantly consolidated the revolutionary technology with the aim of achieving the best performance results and improving several features to better respond to the increasing market demand for utmost flexibility and user-friendly solutions.

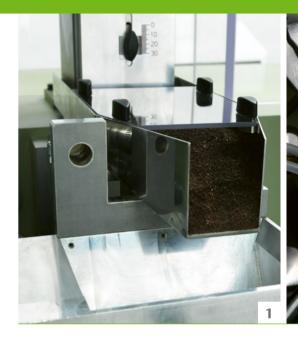
The new IMA C24-E represents the latest generation of tea bag machines for knot technology, a unique machine able to produce knotted teabags at a production speed of up to 400 bags per minute ensuring the highest efficiency rates.

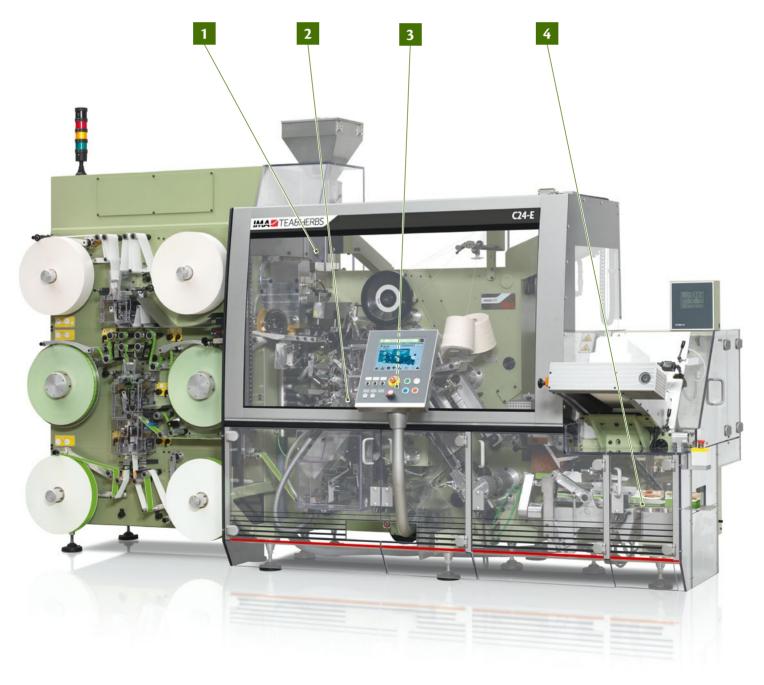


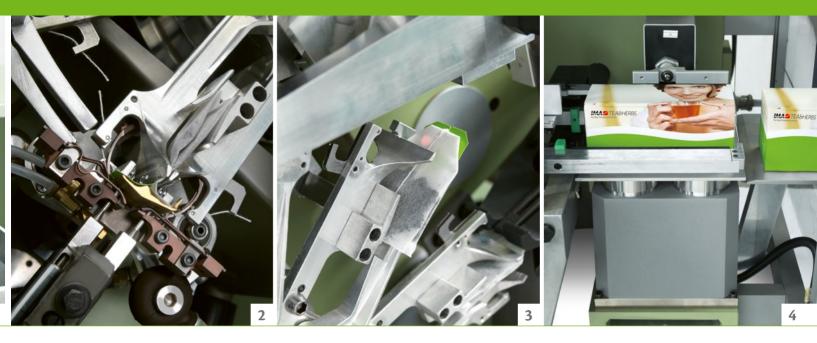




C24-E THE IDEAS TAKE SHAPE









FEEDING vibrating product feeding system



KNOTTING knotting on both tag and filter bag



REJECTION mechanical single bag rejection



checkweighing unit

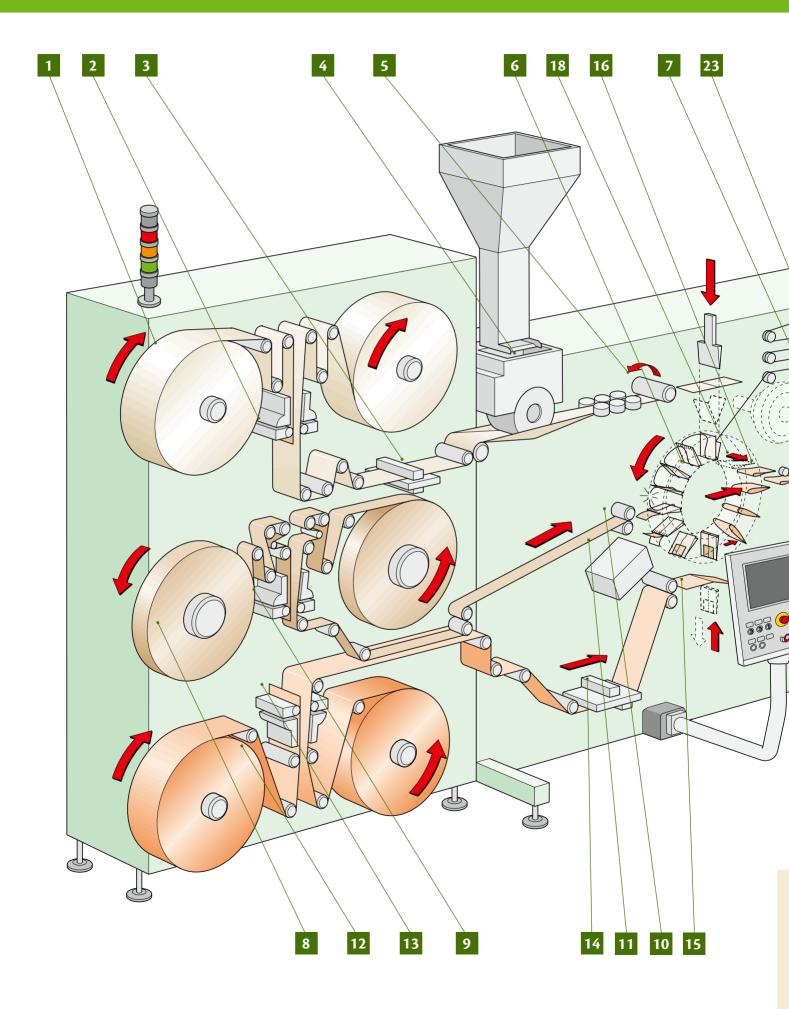
CHECKWEIGHING

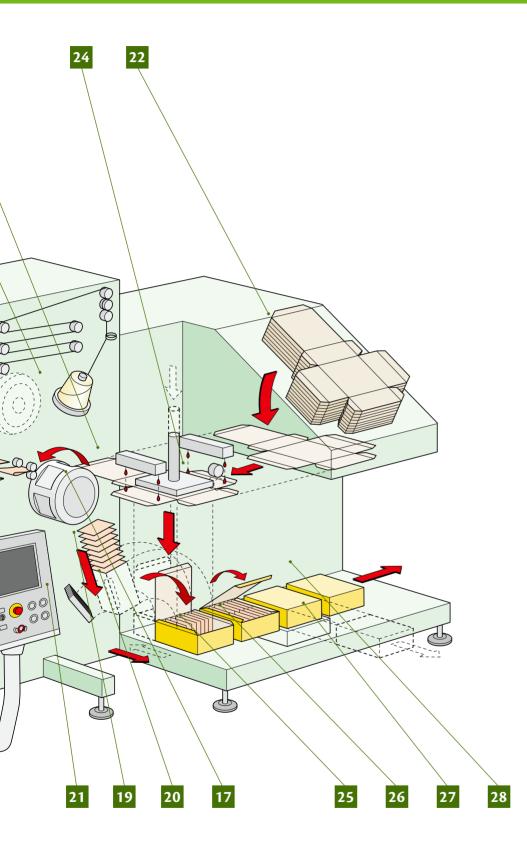
WHY A C24-E

- NO METAL STAPLE
- NO HEATSEALABLE FILTER PAPER
- HIGH PRODUCTION SPEED : UP TO 400 BAGS PER MINUTE
- MECHANICAL SINGLE BAG REJECTION
- HARD TAG
- HIGH FLEXIBILITY AND VERSATILITY
- User-friendly facilities
- High process control

- EASY ACCESS TO MACHINE OPERATING GROUPS
- EASY PART REPLACEMENT, NO ADJUSTMENTS REQUIRED
- Reduced spare parts consumption
- High production efficiency
- PACKAGING MATERIAL SAVINGS
- REDUCED MAINTENANCE
- NO LUBRICATION

C24-E STEP BY STEP





MAIN FUNCTIONS

- 1. FILTER PAPER REEL
- 2. AUTOMATIC FILTER PAPER SPLICING
- 3. FILTER PAPER ALIGNMENT CONTROL
- 4. PRODUCT FEEDING AND DOSING
- 5. FILTER PAPER TUBE FORMING AND CUTTING
- 6. BAG FORMING WHEEL
- 7. COTTON THREAD COIL
- 8. TAG PAPER REEL
- 9. AUTOMATIC TAG PAPER SPLICING
- **10.** Tag paper unwinding and cutting
- 11. KNOT GROUP
- **12.** OUTER ENVELOPE PAPER REEL
- AUTOMATIC OUTER ENVELOPE PAPER SPLICING
- 14. OUTER ENVELOPE PAPER ALIGNMENT CONTROL
- 15. Outer envelope paper cutting and insertion on the filter bag
- **16.** Outer envelope crimping station
- **17.** STACK FILLING WHEEL
- **18.** FAULTY BAG REJECTION
- **19.** FILTER BAG/ENVELOPE STACKING AND COUNTING
- **20.** Stack transfer to the carton filling area
- **21.** CARDBOARD DIVIDER MAGAZINE
- **22.** FLAT BLANK MAGAZINE
- **23.** CARTON GLUEING AND FORMING
- **24.** CARTON CODING
- **25.** Stack insertion into the carton
- **26.** CARTON CLOSING STATION
- 27. CARTON WEIGHING AND FAULTY PACK REJECTION
- **28.** CARTON EXIT

C24-E THE NEW CLASS OF FILTER BAG

ONLY A KNOT

IMA's filter bag is aimed at combining both tradition and innovation resulting in the most appropriate answer to the world-wide market demand. The revolutionary idea of the C24-E filter bag, based on a traditional non heat sealable double chamber bag, guarantees optimum infusion efficiency enabling the natural tea aroma to flow out. No metal staple or additional packaging materials are required to fix the bag to the tag and the cotton thread. Fixing is achieved by two simple knots - one to fix the cotton thread to the filter bag head and the other to fix the cotton thread to the tag. This innovative feature avoids the presence of metallic material during infusion, whilst guaranteeing, at the same time, a discerning and functional filter bag. According to IMA's versatility and flexibility traditional concept, the C24-E offers a wide range of filter bag sizes to suit all product specifications and market demand.



Filter bag tube forming, cutting and erection



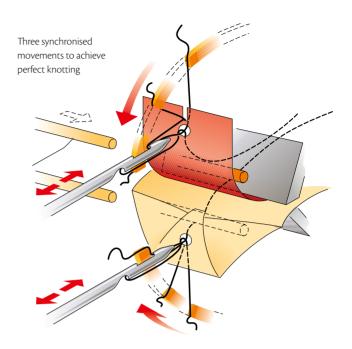
Introduction into the main transfer wheel while the cotton thread is wound around the bag itself

NO ALUMINIUM STAPLE

- ECOLOGICAL PRODUCTS
- NATURAL INFUSION
- A WORTHWHILE SAVING IN PACKAGING
 MATERIAL OF APPROXIMATELY 1 TON PER YEAR
 PER MACHINE







Tag paper feeding, cutting and positioning on the filter bag

IMPROVED SPEED

IMA combines top performance and top quality filter bags achieving a maximum production speed of 400 bags per minute. By focusing on the optimization of the geometry of motion with the aim to improve control in certain strategic production phases, IMA has succeded in increasing speed thus guaranteeing the same product quality at higher efficiency.

THE PROCESS

The simple knots that allow the fixing of cotton thread to filter bag and tag are performed by a highly sophisticated group that has been designed and tested by the IMA Research & Development Department. Both knots, on the filter bag and on the tag, are performed simultaneously on the same station and are achieved through synchronised movements of three mechanical elements controlled by cams. The successful knotting is controlled by a high precision video camera, based on an artificial vision work system and connected to the operator panel (H.M.I.) which allows constant observation of the function. Any knot which does not correspond to the prearranged model is highlighted and memorised and consequently causes the rejection of the single bag without introducing it into the stacking station.



KNOT OPERATION: COTTON THREAD FIXING TO THE TOP OF THE FILTER BAG AND TO THE TAG



C24-E THE OUTER ENVELOPE GIVES FLEXIBILITY



Outer envelope paper alignment control

Filter bag overwrapping in outer envelope material

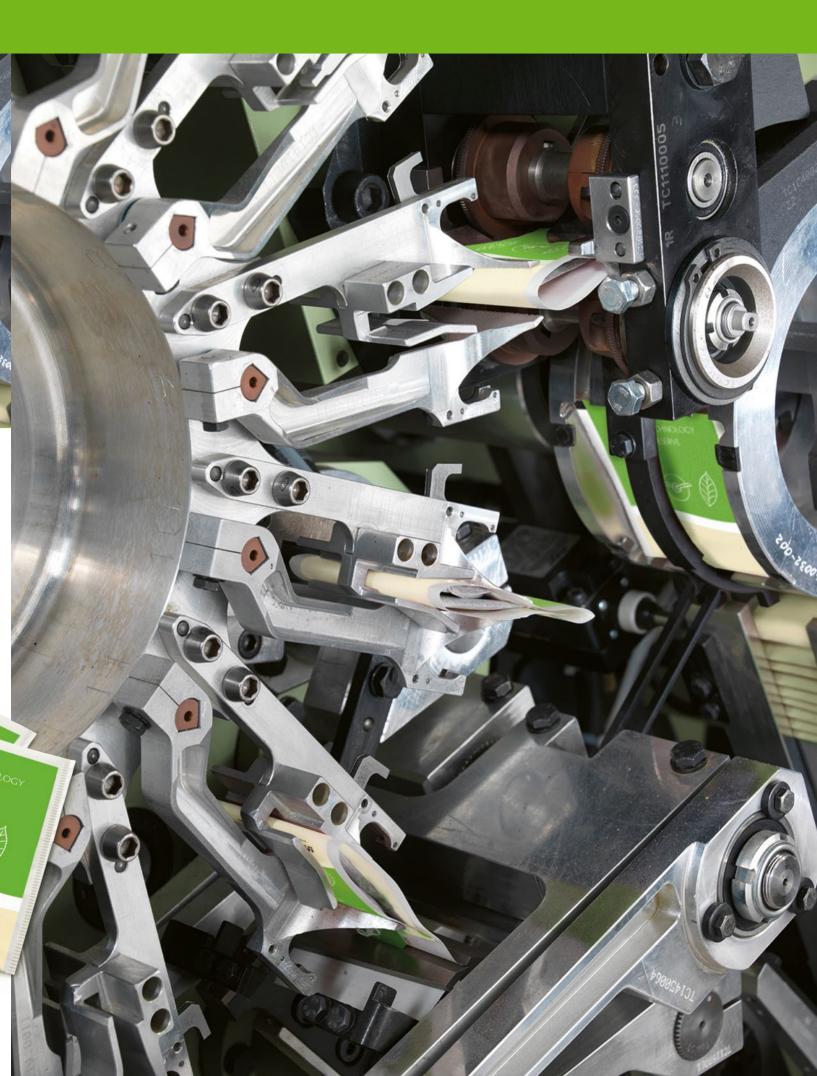
Outer envelope crimping and transfer to stacking unit

CRIMPED OUTER ENVELOPE

As IMA tradition recommends, the C24-E filter bag can be wrapped individually in a protective paper outer envelope crimped sealed at the sides, resulting in a hygienic, tasteful and functional solution. The C24-E can be equipped to produce either naked bags or crimped outer envelopes. Changing the packaging style on the machine can be achieved easily, quickly and at any time. Versatility and flexibility can of course be realised by counting on the wide range of sizes available. The whole process, from the paper reel to the outer envelope closure, is easily accessible. The electronic control for the outer envelope paper print registration and feeding, achieved by means of a servomotor assisted motorization, always guarantees an excellent result in terms of product quality.

> PRODUCTION SPEED : 400 CRIMPED OUTER ENVELOPES PER MINUTE





C24-E THE OUTER ENVELOPE ENSURES RELIABILITY



Outer envelope head sealing

Longitudinal cold tension to guarantee perfect heatsealing alignment



HEATSEALED OUTER ENVELOPE

To preserve the aroma of herbs, flavoured teas, pharmaceutical infusions and superior tea blends, the C24-E offers the possibility to overwrap the filterbag in a heatsealed, airtight and waterproof outer envelope. To open the envelope it is enough to tear the upperseal by using the appropriate cut out notch. Various types of materials can be used on the C24-E to achieve the best packaging solution. Outer envelope head and longitudinal sealing are performed on two consecutive and extremely compact and simplified stations where space and parts have been drastically reduced to the minimum required. IMA's high flexibility enables the change from naked bags to heat sealed outer envelopes quickly and easily thereby offering the right solution to any market demand.

PRODUCTION SPEED : 350 HEATSEALED OUTER ENVELOPES PER MINUTE

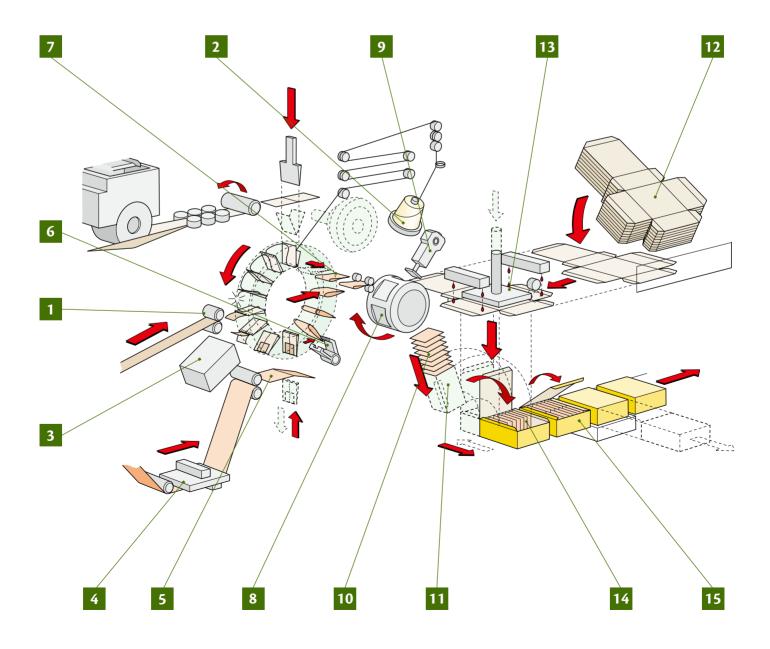
Longitudinal heatsealing and transfer to stacking unit

PACKAGING FLEXIBILITY

The C24-E is able to run both multi and single layer packaging materials guaranteeing the same efficiency ratio for perfect product preservation.

- 1. TAG PAPER UNWINDING AND CUTTING
- 2. COTTON THREAD COIL
- 3. KNOT GROUP
- 4. OUTER ENVELOPE PAPER ALIGNMENT CONTROL
- 5. OUTER ENVELOPE PAPER CUTTING AND INSERTING ON THE FILTER BAG
- 6. OUTER ENVELOPE HEAD SEALER
- 7. FAULTY BAG REJECTION

- 8. STACK FILLING WHEEL
- 9. LATERAL OUTER ENVELOPE SEALER
- **10.** Bag/envelope stacking and counting
- **11.** STACK TRANSFER TO THE CARTON FILLING AREA
- **12.** FLAT BLANK MAGAZINE
- **13.** CARTON GLUING AND FORMING
- **14.** Stack inserting into the carton
- **15.** CARTON CLOSING STATION



AUTOMATIC CARTONING ATTACHMENT FROM FLAT BLANKS

To complete the whole production cycle, the C24-E is equipped with an automatic cartoning attachment from flat blanks, available in two different versions:

- TI1 from 1 to 2 rows: for a minimum of 8 to a maximum of 68 naked bags or outer envelopes
- Tl2 from 1 to 3-4 rows: for a minimum of 8 to a maximum of 100 outer envelopes on 3 rows for a minimum of 8 to a maximum of 100 naked bags on 4 rows

The cartoning attachment automatically erects cartons from flat blanks, fills the carton with filter bags (with or without outer envelope) and finally closes the carton (tuck-in or glued).

Each correct filter bag is picked up from the central wheel by means of a mechanical pincer, transferred, by means of a second wheel, to a stacking station and counted. The whole stack is then inserted into the carton by means of a rotating movement and the carton is finally closed and transported to the exit.

The cartoning attachment can be completed with the following additional groups:

- cardboard divider unit
- carton coding unit
- coupon inserter
- checkweighing unit complete with carton rejection and automatic dose regulator



THE ADVANTAGE OF ELECTRONICS: FROM COUNT TO COUNT

The IMA C24-E achieves the greatest versatility in the design of its new counting and stacking units. Stacking is controlled by independent motors which allow a swift electronic count change over avoiding completely the need of any part replacement and guaranteeing always the correct number of bags or envelopes in the stacking unit.

PACKAGING VERSATILITY: NAKED BAGS, CRIMPED AND HEATSEALED OUTER ENVELOPES PACKED IN 1 TO 4 ROW CARTONS

THE EFFICIENCY YOU DESERVE

Experience is the key in improving performance to the utmost and based on this concept the new IMA C24-E can be equipped with the following additional groups to achieve the highest levels of efficiency:

- increased capacity cardboard divider or leaflet magazine
- motorised flat-blanks magazine





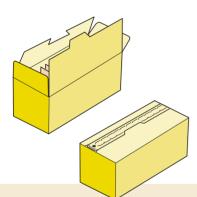
```
Stack introduction into the carton
```

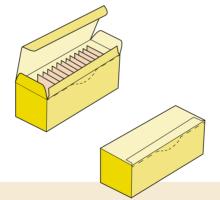
Carton closing

FLEXIBILITY IN STYLE

The C24-E cartoning attachment permits the packaging of filter bags in different final carton styles according to such criteria as product integrity, personalisation, style and cost saving. As well as the standard tuck-in closure cartons, three further options are also available:

- Tear Strip Closure carton
- Kurzlaschen Closure carton
- Caddy Closure carton





TEAR STRIP CLOSURE CARTON

The Tear Strip Closure carton offers a tamper proof security as well as a reclosable solution. This carton style requires no overwrapping, therefore guaranteeing additional cost saving.

KURZLASCHEN CLOSURE CARTON

The Kurzlaschen Closure carton offers a tamper proof security as well as a re-closable solution. This carton style reduces cardboard consumption and does not need overwrapping, therefore guaranteeing additional cost saving.

CADDY CLOSURE CARTON

The Caddy Closure carton represents the perfect solution for a more stylish and appealing final package. This carton is reclosable and remains intact after opening. It is completely ideal for personalization.

C24-E UTMOST EFFICIENCY



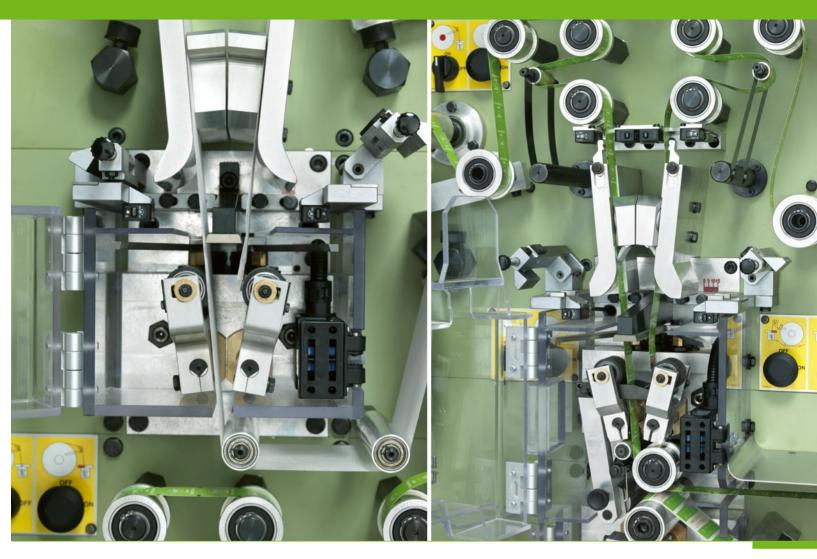
Mechanical single bag rejection

SINGLE BAG REJECTION

Prior to entry into the stacking unit, the revolutionary use of a sophisticated video camera, connected to a H.M.I. which controls the correct knotting on both filter bag and tag, permits the rejection of single bags which do not correspond to the prearranged quality standards. The rejection of single bags is now achieved by a fully mechanical system guaranteeing a user-friendly solution avoiding operator intervention to remove bags. This innovative solution reduces compressed air consumption and the presence of tea dust on the machine. Thanks to the innovative independent motorization system, the counting of filter bags is automatically stopped, a correct bag is retrieved to complete the required count and production flow proceeds smoothly without any interruption. This unique system guarantees the highest product quality and at the same time contributes to savings in packaging material and machine efficiency increase.

PACKAGING MATERIAL AUTOMATIC SPLICING

The C24-E is fitted with an advanced automatic splicing system for all packaging materials such as filter paper, tag and outer envelope papers, both crimped and heat sealed. Packaging material splicing is performed smoothly during machine production at a speed of 400 bags per minute (no reduction in speed is necessary). It has been statistically proven that this sophisticated system saves time in the replacement of packaging material thereby contributing to the user-friendliness of this machine and enabling one operator to follow three machines, guaranteeing an increase in machine efficiency of up to 10%.



Automatic filter paper splicing unit

Automatic tag paper splicing unit



To guarantee a higher efficiency and a fully reliable product quality, the IMA C24-E offers the best technical solutions to control constantly the whole working cycle

Automatic outer envelope paper splicing

C24-E UTMOST EFFICIENCY



DEDICATED END OF REEL SENSORS

Whilst the automatic splicing of packaging material guarantees an increase in efficiency, new sensors and dedicated end of reel detecting solutions result in a reduction of waste material.

The new C24-E is equipped with sensors that:

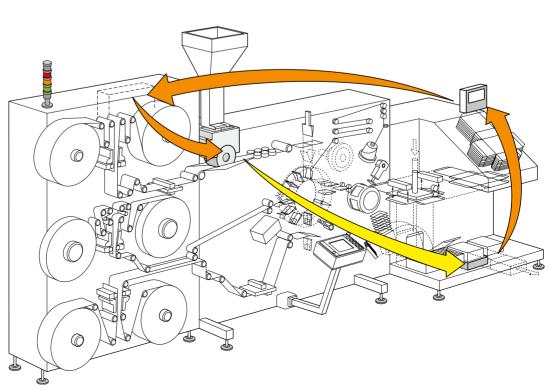
- detect end of tag paper reel by placing a metal strip 1.5 mt. from reel core
- detect a coloured tape placed on the inside of the envelope material (to avoid interference with the print pattern and material specification) 1.5 mt. from reel core.

MOTORIZATION

The C24-E is provided with independent motorizations synchronised with specific cards for axis control. The strength of this innovative system is most emphasised in the count and carton size change over functions, where the motorizations provide for a quicker and safer operation assuring maximum production efficiency.

AUTOMATIC WEIGHT CONTROL AND ADJUSTMENT

This group can be fitted on the product feeding and dosing group and connected to a checkweigher unit at the end of the line, it automatically rejects cartons not reflecting the exact weight previously selected by the operator. The weight is controlled on the checkweigher and automatically adjusted to the required dosage.



C24-E THE ELECTRONICS



Video camera to control the correct knotting on both filter bag and tag



PROGRAMMABLE CONTROL

The whole working cycle logic and quality control are achieved by a PC, software compliant with the IEC 1131-3 standards. The use of a PC represents a great advantage towards the risk of obsolescence and consequent need for spare part replacement and software update. All main machine stations have been provided with a specific product control device to guarantee the maximum product quality. All main functions can be easily controlled by the operator on the push-button panel. Production efficiency is kept at the highest level as most of the controls do not stop the machine, but automatically reject the faulty product (single filter bag or carton).

C24-E TOP PRODUCT QUALITY

VIBRATING PRODUCT FEEDING SYSTEM

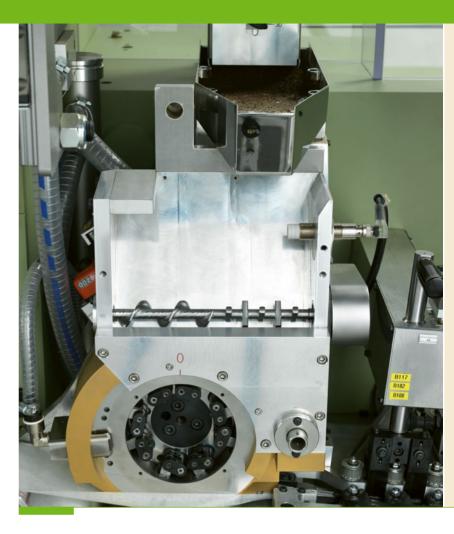
The new C24-E is equipped with a vibrating product feeding system allowing the machine to easily run non free-flowing products drastically reducing product degradation and thereby preserving the best product quality.

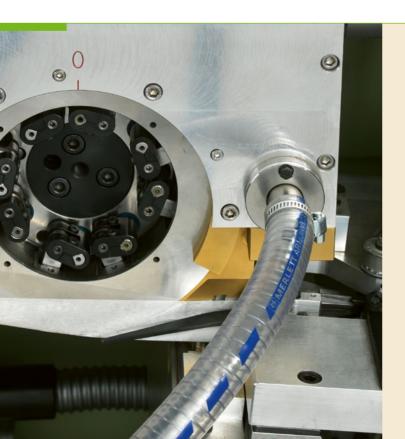
This system, which is particularly easy to shield with safety guards, also helps protect the feeding area from risk of cross contamination during product changeover

DOSING BOWL

Again, the quality of the product is particularly protected in the feeding process due to the reduced size of the dosing bowl which contains only a small volume of product thereby reducing its fragmentation to a minimum.

The choice of the correct materials also plays an important part in the way the most delicate products are handled inside the dosing bowl.





EASY CLEANING

The dosing unit has been designed to allow easy access for cleaning. This area can be completely opened from the top without the use of any tools and is easily cleaned.

In addition, a valve placed on the bottom of the bowl connected to a suction pipe for product re cycling also allows complete cleaning enabling a fast product change over.

During the cleaning procedure it is estimated that a time saving of approximately ten minutes per product changeover can be achieved compared to that of the traditional dosing system.

C24-E A STEP FORWARD TO INNOVATION

H.M.I. (HUMAN MACHINE INTERFACE)

The new IMA C24-E responds to the demand for production monitoring with an improved functionality PC based H.M.I. able to supply the following data:

- Machine alarms with historical and statistical data
- Predictive Maintenance Management with live progress bar and historical data
- Constantly updated efficiency data for the operator
- Efficiency calculation shift/batch with historical data
- Daily production and efficiency reports in Excel with shifts/ batches

The interface also provides :

• function display for filter bag conformity control provided by video camera



MOTORIZED SAFETY GUARDS

The role of the operator to handle highly technical machinery is extremely important particularly when we consider that one operator might be responsible for the running of several machines at once. With this in mind and to assist the operator in his role the new C24-E has been equipped with newly designed motorized safety guards reducing opening and re-closing times.

When the machine stops, the front panel opens up automatically to the required height to allow the necessary intervention. The opening height varies according to the jam position in the machine and it is automatically controlled by the machine PC.

However, when necessary, guards can be opened entirely to a maximum height of 3,1 meters.

COOLING DEVICE FOR ELECTRICAL CABINET

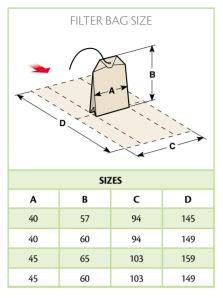
With the aim to improve and extend the life of the electronic components by reducing the presence of fine dust inside the electrical cabinet, the new C24-E has been fitted with a cooling system avoiding the use of fans.

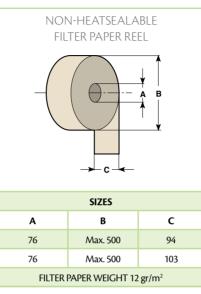
This innovation also guarantees a reduction in maintenance times for regular filter cleaning and replacement.

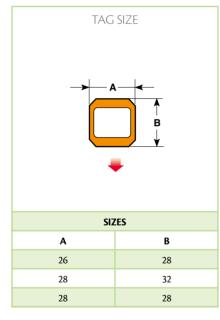


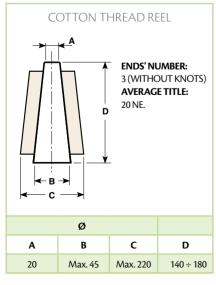
C24-E PACKAGING MATERIALS AND PRODUCTS

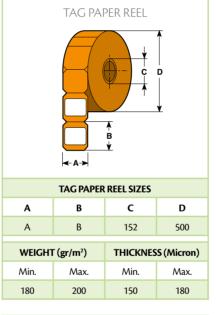
PACKAGING MATERIALS AND PRODUCT SPECIFICATIONS

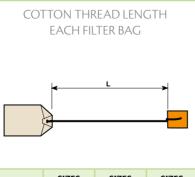






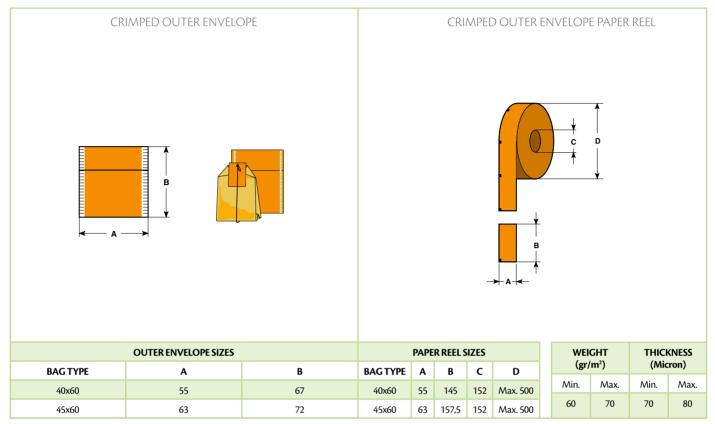






	SIZES 40X57	SIZES 40X60 45X60	SIZES 45X65
L(mm)	135	140	150
TOTAL LENGTH (mm)	205	210	220

CRIMPED OUTER ENVELOPE SPECIFICATIONS



Max. 500

Max. 500

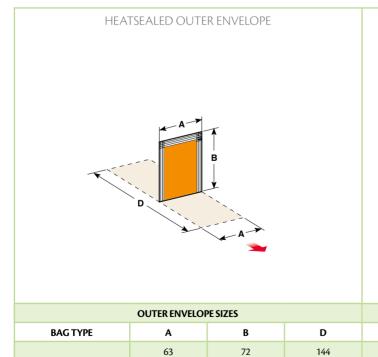
Max. 500

80 ÷85

80 ÷85

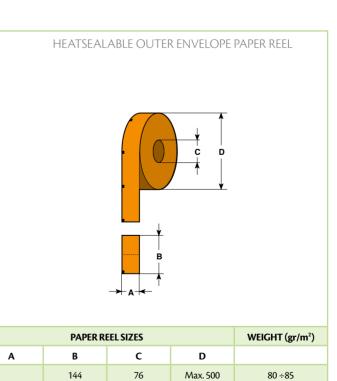
80 ÷85

HEATSEALED OUTER ENVELOPE SPECIFICATIONS

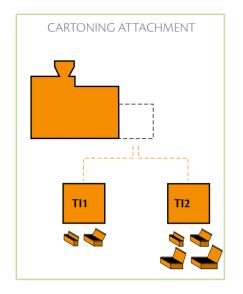


40x60

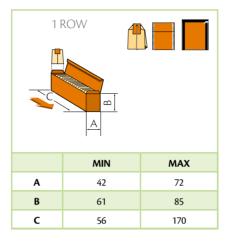
45x60

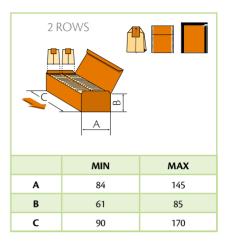


C24-E PACKAGING MATERIALS AND PRODUCTS

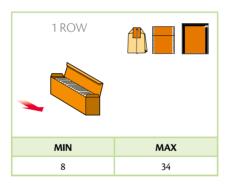


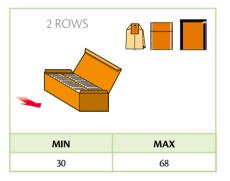
TI1 CARTONING ATTACHMENT FROM 1 TO 2 ROWS OF BAGS OR OUTER ENVELOPES



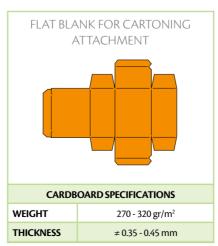


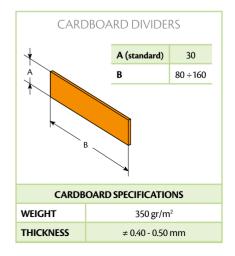
NUMBER OF ENVELOPES OR BAGS FOR CARTONS FOR TI1 CARTONING ATTACHMENT FROM 1 TO 2 ROWS OF BAGS OR OUTER ENVELOPES



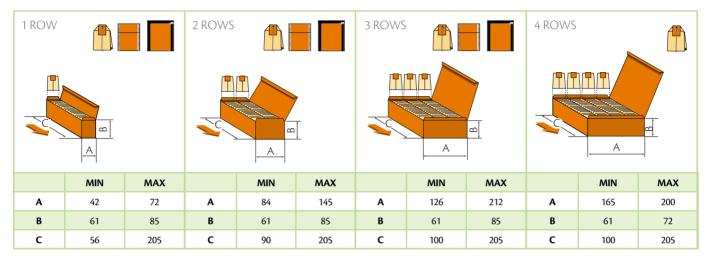


CARTON SPECIFICATIONS FOR FLAT BLANKS AND CARDBOARD DIVIDERS FOR TI1 CARTONING ATTACHMENT FROM 1 TO 2 ROWS OF BAGS OR OUTER ENVELOPES

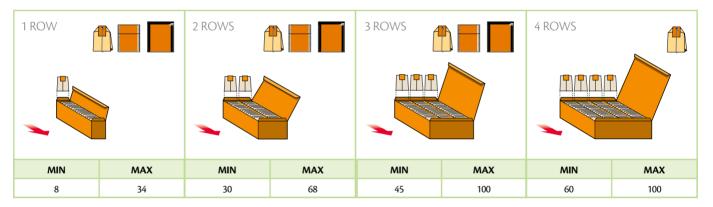




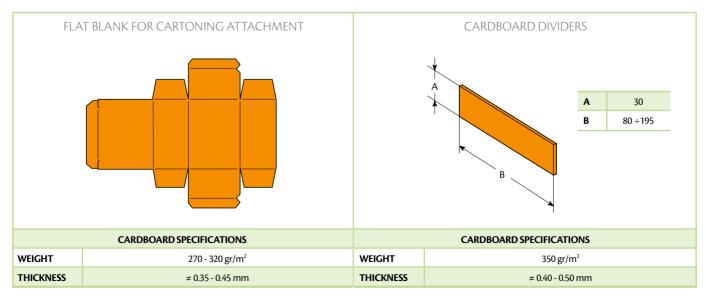
CARTON DIMENSIONS FOR TI2 CARTONING ATTACHMENT FROM 1, 2, 3 TO 4 ROWS OF BAGS OR OUTER ENVELOPES



NUMBER OF ENVELOPES OR BAGS FOR TI2 CARTONS FOR CARTONING ATTACHMENT FROM 1, 2, 3 TO 4 ROWS OF BAGS OR OUTER ENVELOPES

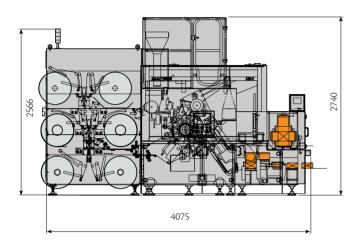


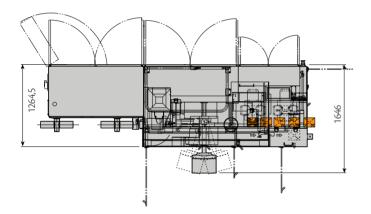
CARTON SPECIFICATIONS FOR FLAT BLANKS AND CARDBOARD DIVIDERS FOR TI2 CARTONING ATTACHMENT FROM 1, 2, 3 TO 4 ROWS OF BAGS OR OUTER ENVELOPES



C24-E GENERAL TECHNICAL DATA

MACHINE OVERALL DIMENSIONS WITH TI1 CARTONING ATTACHMENT FROM 1 TO 2 ROWS OF BAGS OR OUTER ENVELOPES





Machine speed:

- Up to 400 bags/minute for naked bags and crimped outer envelopes
- Up to 350 bags/minute for heatsealed outer envelopes

Teabag capacity:

- Up to approximately 4,0 grams
- Filter bag maximum volume 10,5 cubic centimeters

Power required:

- Total installed power: 23 kW
- Average power consumption: 5,5 kW
- Maximum power consumption: 11,5 kW Note: consumption depends on the thermic groups
- fitted on the machine

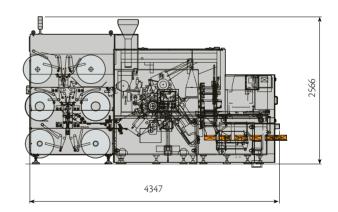
Compressed air:

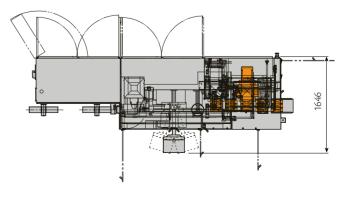
- Exercise pressure: 6 bar
- Consumption: up to max. 650 NI/min.

Machine net weight:

- IMA C24-E for crimped/heatsealed outer envelope with cartoning attachment: maximum 4250 kg

MACHINE OVERALL DIMENSIONS WITH TI2 CARTONING ATTACHMENT FROM 1, 2, 3 TO 4 ROWS OF BAGS OR OUTER ENVELOPES







IMA S.p.A. - **TEA & HERBS division** mktg.tea@ima.it • ima.it/beverage/brands/tea-herbs FOLLOW IMA **f** in **D (2)**



ima.it