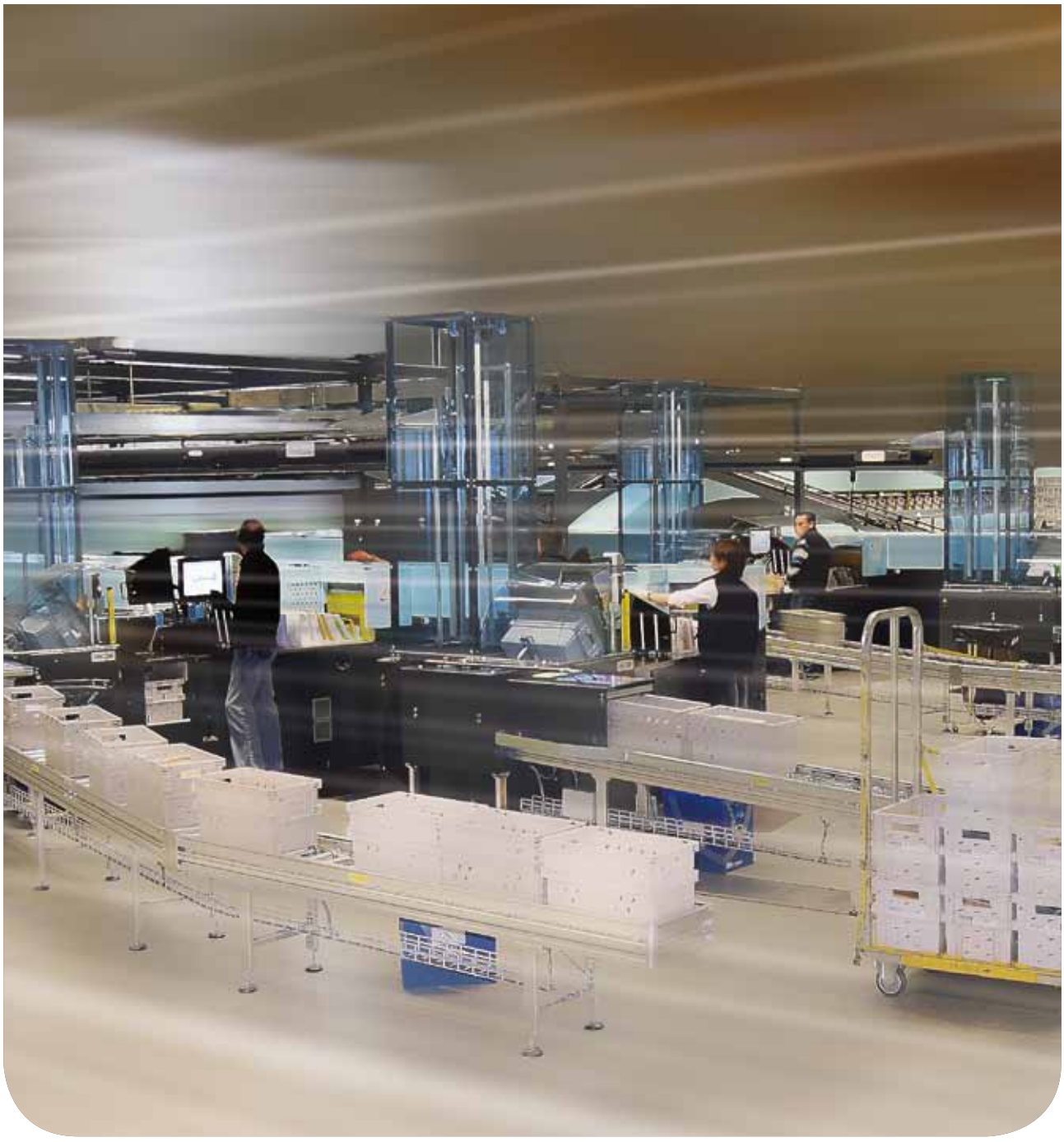
ADVANCED TECHNOLOGY USED IN FLAT MAIL SORTING

TOP 2000

The most complete solution



Future postal solutions

SOLYSTIC
a NORTHROP GRUMMAN company

TOP 2000

The long

SOLYSTIC has now produced the ultimate solution in the field of flat mail sorting: TOP 2000.

A complicated environment

Oversized mail volumes have been constantly growing throughout the last few years. Postal operations faced with this problem are searching for efficient, profitable solutions. Moreover, the opening up of the postal markets places highly critical constraints on them. They are also looking for answers to these problems, for solutions capable of optimising and improving productivity and reliability, and providing the levels of flexibility required.

Feeding station

The response of an expert

Even though SOLYSTIC's expertise in the domain of flat mail sorting is unquestionable, they have evolved their TOP concept, producing an even more complete system to meet the needs of their customers: TOP 2000.

With state-of-the-art postal automation technology, this machine was designed to achieve levels of operational productivity twice those of the standard currently available machines.

• Throughput

TOP 2000 is capable of processing more than 38,000 objects per hour – with 5 operators. Two infeed lines serve up the mail pieces, each of the lines providing 6 objects/second.

• Operational procedures

Each line injects the mail onto a two tiered sort carousel. To minimise the footprint of the equipment, the machine is fitted with up to 480 tray outputs split up into 2 levels. Tray handling is completely automated. This is another essential element of the operational efficiency of TOP 2000 which permits the whole system to be run by fewer operators.

Finally, TOP 2000 was designed to be capable of dealing with the specific requirements inherent in carrier walk sequencing.

awaited answer

The TOP 2000 operating modes.

Image acquisition COPERNIC™

A broad range of functions

The modular nature of TOP 2000 means it can be adapted to any specific configuration set-up required by the client, including OCR, on-line or off-line video coding as well as bar code reading.
One infeed line can be equipped with up to two feeders, each providing a throughput of 3 objects/second. Each infeed line can be equipped with the following functions:
- complete image acquisition for each piece of mail,
- fluorescent (or black or invisible) bar code reader,
- ID-tag printing,
- culling.

Labelling station

Moreover, additional functions are available on request:
- dynamic weighing of mail pieces with an accuracy of ± 10g,
- double image lift (second image lift on back of letter side),
- the labelling of plastic wrapped mail pieces or noisy background envelopes,
- special mark application (advertising, addressing, mail forwarding, etc.),
- stamps detection (fluorescent or other) and cancelling,
- detection of multiple feeds,
- analysis of the mail piece size (measuring length, height, thickness),
- fraudulous franking detection.

OCR/VCS

The image acquisition unit sends an image of the object to the address recognition unit (OCR system). This image is then compressed and forwarded to the different sub-systems such as:
- the optical reader, which locates the “address block“ then reads the address,
- the video-coding system, whenever the recognition process for an address cannot be complete. It simultaneously handles flats, parcels and letters. When using off-line coding, an ID-tag is printed.
- the Wide Area Bar Code Reader (WABCR), which localises and reads any bar codes printed on the mail piece.

V-Id™

It is possible to replace ID-tagging with a V-Id™ (Virtual Identification tag), the principle behind which is to be able to locate each and every letter without having had to print an ID-tag.

- A wide range of mail types
- High throughput
- Modular infeed and output
- Optimised maintenance
- Ergonomic system

The strong points that make all the difference

TOP 2000 Optimum

TOP 2000 contributes to improve productivity, reliability and flexibility.

Tray Unloading Device (TUD)

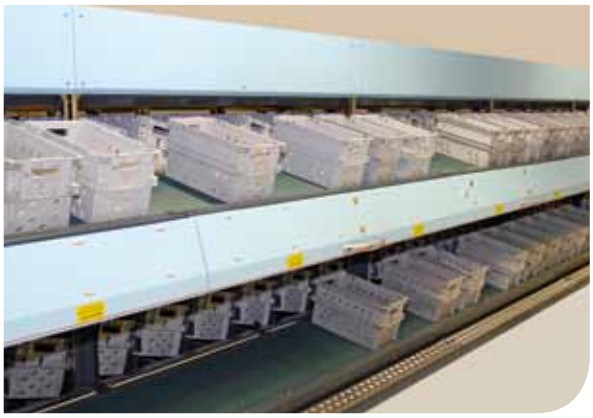
Infeed lines

Each infeed line provides 50% of the machine's throughput. To ease the workload of the operators, a Tray Unloading Device (TUD) can be fitted to each feeder.

The carousels

The two carousels are independent of one another and made up of buckets used to transport the items of mail. The items are discharged straight into the tray. The principle used provides an optimum edging and facing of the items and avoids accidental flipping over of the mail pieces. The carousels have a throughput capacity of 43,200 objects/hour.

In order to enhance the productivity of the machine, TOP 2000 is provided with a "dynamic runout assignment" feature, which means the mail can be sorted to many more destinations than the number of outputs it is equipped with. This technique can currently provide 15% to 20% extra splits for a given configuration.



Output modules

Maintenance passage

Maintenance passage

Maintenance is an important factor influencing operating costs and the reliability of a system like TOP 2000. For this reason the notion of "preventive maintenance" was taken into account when designing the equipment. The aim of preventive maintenance is to identify actions to be taken throughout the working day in order to optimise equipment availability. The maintenance passage, within the machine itself, provides the technicians with easy access.

efficiency

Automatic Tray Handling System (ATHS)

The TOP 2000 machine is proposed with an integrated tray handling system called “ATHS”.
Empty trays on the infeed stations are automatically routed towards the outputs where the tray transfer devices replace the full trays with empty ones. Full trays, coming from both sides of the machine, are merged and then labelled depending on their destination. Thanks to the buffer capacity of the empty tray distribution system and the efficiency of the tray replacement system, the TOP 2000, with its two separate carousels, keeps the non-productive time down to a minimum. When configured for 384 outputs, the downtime between two sort plans is less than five minutes.
Being entirely integrated into the TOP 2000 machine, the ATHS maximises the productivity of the entire sorting process.

Automatic Tray Handling System

ATHS System

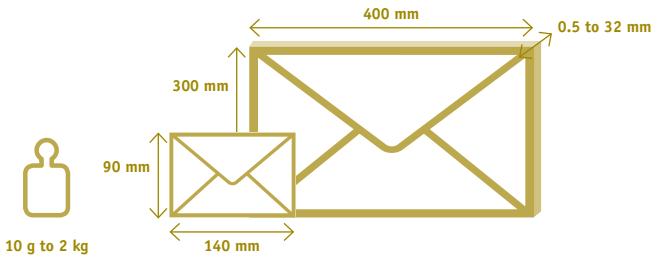
Other services available...

Using its experience gained in the field, SOLYSTIC can offer its customers a wide range of services providing them with a fast autonomy and a complete knowledge of the equipment which permits to optimise the processing activity as soon as the machine is installed:
- documentation and training fully adapted to your needs,
- operational assistance during the first weeks of operation,
- “full service” maintenance,
- local or remote supervision with the aid of built in tools,
- hotline support,
- consultant visits on request,
- periodic equipment upgrades,
- performance audits,
- spare parts and repairs.

Tray labelling

TOP 2000
Ingenuity leads

Strong key points at every level.



Range handled by TOP 2000

Man/machine interface

• A wide range of mail

TOP 2000 can process a highly varied range of flat mail pieces, including all types of plastic coverings, wrappers, open (unsealed) items, magazines video packages, etc.

• Impressive throughput

TOP 2000 is capable of processing 12 items/second. This level of performance gives an operational throughput of 38,000 objects/hour over an eight-hour period.

• Highly modular

TOP 2000 can be modified at any time, depending on market requirements. Supplementary outputs can be added, in modules of 24. Another example: a machine fitted with a single infeed line can, later on, be fitted with a second.

• Highly efficient supervision

TOP 2000 is designed to be connected to the SOLYSTIC Information Management System (ISIS), or to any other monitoring system, covering both maintenance and operations.

• Optimised maintainability

The TOP 2000 machines are designed to minimise down times. Being sturdy and reliable, they are provided with a full package of test and diagnosis programmes. The number and variety of test programmes has been increased by the re-design of the "command & control" system used on the latest generation of SOLYSTIC equipment. Easy access (thanks to the maintenance passage) associated with easy-to-use test tools and simple adjustments, contribute to the optimisation of interventions by maintenance teams.

• Ergonomic designs

During the design stage, the ergonomics of the TOP 2000 system were studied in-depth, whilst still respecting the imperatives of productivity. Noise levels, which are particularly low, also play a role in operator comfort. In addition, the Man-Machine interface has an important role to play in the overall performance of the system.

• A user-friendly interface

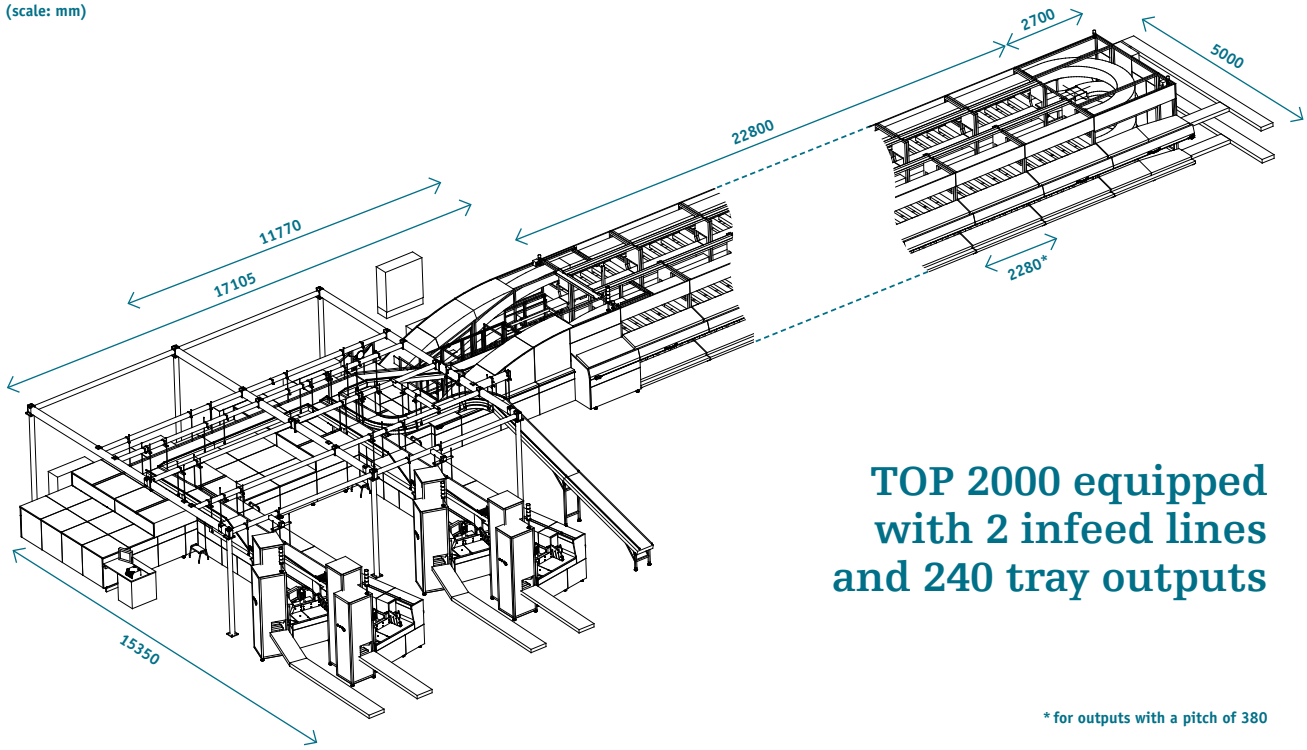
The TOP 2000 feeders are all equipped with a colour, touch-sensitive screen displaying user-friendly menus. Being easy to use, this feature provides means for the operator to have easy access to numerous parameters, including the sort modes & plans, or mail batches.
During operation, information is displayed in real time. The operator can thus, at any time, optimise the running of the system by modifying the processing parameters. At least, statistical information can be displayed in the graphic mode.

• A great choice of trays

TOP 2000 can take different types of trays, flexible containers or plastic trays.

to efficiency

(scale: mm)



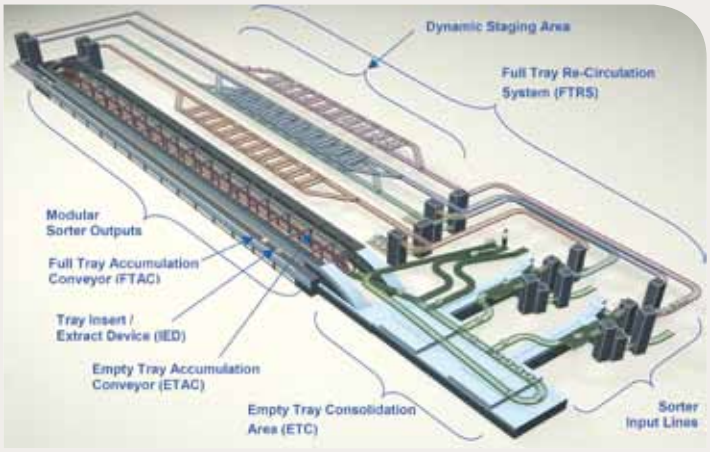
TOP 2000 equipped with 2 infeed lines and 240 tray outputs

* for outputs with a pitch of 380

Sequencing

• A concept designed to facilitate postal deliveries

The machine can also be used to prepare postal delivery routes (sequencing), in a two pass mode. TOP 2000 is thus supported by a system of conveyors, which recycle the full trays, carrying them back from the outputs to the feeders.
The expertise (in terms of sort plan generation and sequence control algorithms) as well as the experience of SOLYSTIC (in the preparation of carrier walks) are thus made available to the field of flat mail processing.



Tray IPC (CEN TS 14482)

Spanish tray (Correos)

Plastic tray

Technical characteristics

Maximum machine throughput	43,200 objects/hour
Operational throughput	38,000 objects/hour
Outputs	From 120 to 480 trays
Staffing	4 feeder operators and 1 supervisor (part time)
Preparation for postal delivery rounds (sequencing)	Depending on its configuration, TOP 2000 prepares, in 2 passes, the walks of more than 100 carriers, at a rate of 16,000 objects/hour. E.g.: 360 outputs are capable of simultaneously preparing more than 200 carrier walks.
Sweeping time	a) Inter-session (changing sorting plan): between 5 & 7 minutes – depending on machine configuration b) General (removal of all trays from the machine): between 10 & 15 minutes – depending on machine configuration
Noise level	≤ 70 dBA
Environmental conditions	Temperature: between 10°C and 35°C Relative humidity: between 20% and 90% - non condensing

SOLYSTIC S.A.S
14, avenue Raspail
94257 Gentilly CEDEX
France
Tel: +33 (0)1 49 69 41 00
Fax: +33 (0)1 45 47 82 20

www.solystic.com

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