



Machines, consumables and automation for objects printing

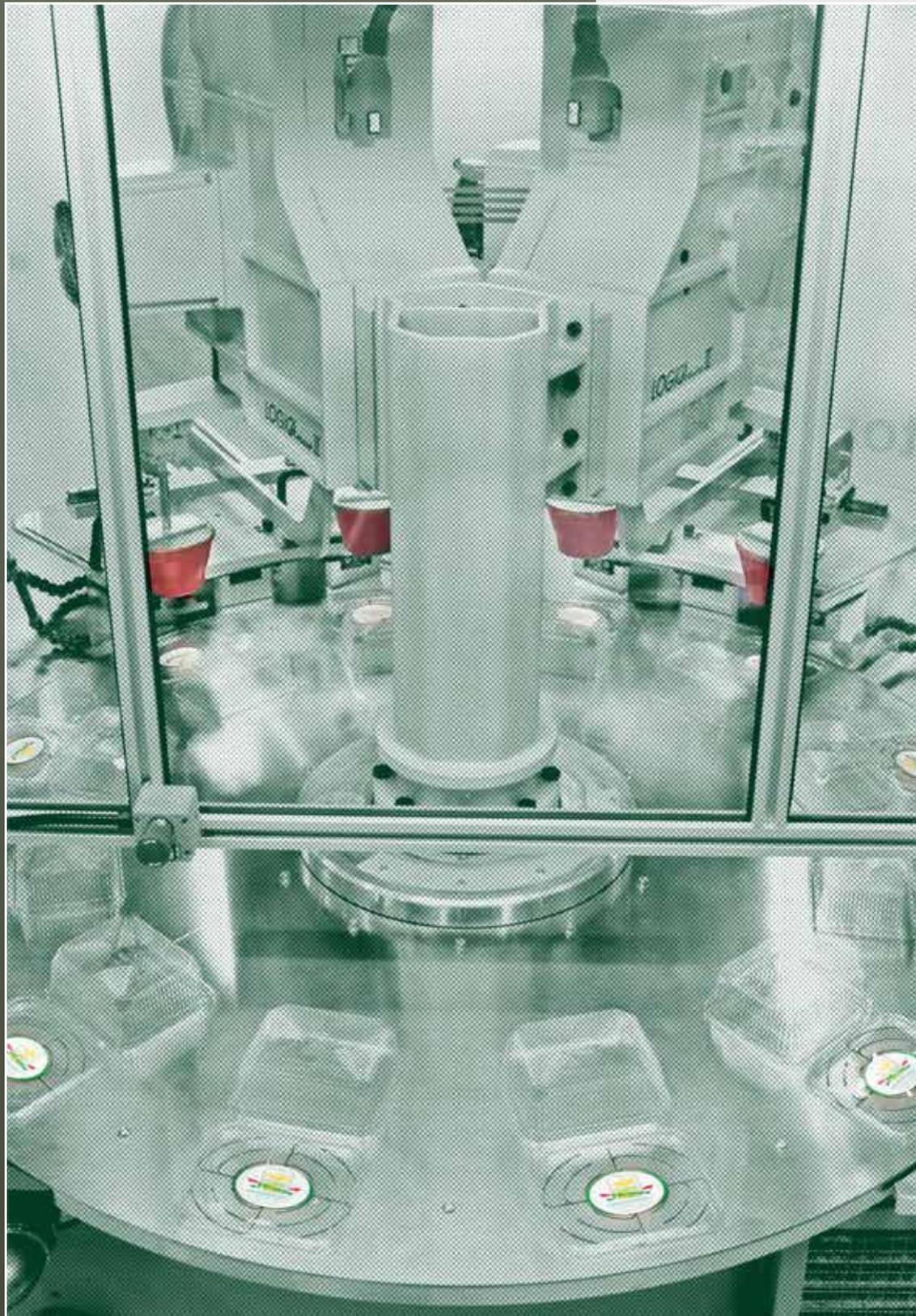
Logica **Platform**

PAD PRINTING SYSTEM



100% Made in Italy





Logica Platform mod. M

N. 2 Logica Micro II print heads for 4 colours printing on food containers. Static jigs with vacuum centralized piece-holding system and reverse cliché.

Logica Platform

- The only modular automated pad printing system for industrial applications
- Available in **3 different sizes: S** (small) - **M** (medium) - **L** (large)
- Print up to 10 colour
- Max dia. Ink cups 195mm
- High mechanical cadences
- Full electric operation with numerical control
- Compact, it requires little space for installation
- Unmatched flexibility
- High quality mechanics to guarantee smooth operation
- Easy accommodation of auxiliary equipment
- Meets the INDUSTRY 4.0 integration requirements



Logica Platform mod. M

Printing on cosmetic packaging (mascara) - N. 4 Logica Micro Compact print heads up to 4 colors printing on one side or printed on more sides. Surface Pre-treatment, automatic loading and unloading, vision inspection for quality control and automatic ink dilution.

With the first installation of a **Logica Platform**, carried out in the early 2000s, TOSH introduced a new innovative concept of automated pad printing machine for **industrial applications**.

Nothing like this had ever been seen before.

After hundreds of installations, TOSH has refined and evolved the Platform Series, renewing it in line with the ever-increasing technological requirements on the market. Series Platform is the only machine capable of decorating **up to 10 colors** even on several sides of an object at high mechanical rates (with the Logica Velocina print head you can reach **9000 c/h**).

The improvements made over the years permit a printing precision never reached so far.

Logica Platform can be realized in 3 different sizes, in relation to the dimension, to the number of colors and the speed of printing you want to get.

It is a real "printing platform" where it is possible to mount additional automated components such as

- Part Automatic loading and unloading.
- **Integrated vision inspection** for print quality check.
- Pre-post treatment (flame, corona or plasma).
- **Thinner Injection System**
- Devices for other processes (piece register, parts rotation, centralized vacuum, etc ...).
- **UV-ink** curing
- Dissipation of electrostatic charges.
- Other equipment (laser, hot stamping, inkjet, etc.).

At the core of the PLATFORM SERIES is a high precision numerically controlled rotary table to be chosen amongst the models **TRCN 04**, **TRNC 06** and **TRCN 10** in relation to requested fixtures, printing precision and speed.

High-speed pad printing heads such as the Logica mi.micro, **Logica Micro Compact**, **Logica Micro II**, **Logica Macro II** and **Logca Velocina**, can be installed in the center of the rotary table facing outward. This gives the operator complete access to pads, clichés and ink for fast, user friendly changeover and process control.

Clichés on the system are **positioned radially**, so that the graphics can be easily engraved without inclination on the cliché, or positioned outside the machine (**reverse cliché**).

All Logica Platform can be supplied with full enclosure (closed TOP) or inexpensive open top guarding; it can be also equipped with a **special air-treatment system** complete with antibacterial filter.

The system is moderately pressurized.

Logica Platform mod. L
N.6 print heads Logica Macro II for
the printing of glass bottles for
high-end perfumes, fully automatic.





Example of static fixtures



Example of rotating fixtures



Combination of static and rotating fixtures

CHARACTERISTICS

- The **Logica Platform** is available in **three sizes**: S (small), M (medium) and L (large)
- All motions are **numerically controlled**; this guarantees high precision, flexibility and simplicity without compromise.
- The **exclusive electric operation** provides considerable advantages over an equal pneumatic system.
- Manufactured from the highest quality light alloy and steel.
- **Eco-friendly**. Due to the hermetic ink system preventing solvent evaporation.
- Changeover time in less than one minute, thanks to the design concept considering the **ultimate ergonomic principles**.
- Logica Platform can be supplied with full enclosure with closed TOP or inexpensive open top guarding.
- The system can be also equipped with a **special air-treatment system** complete with antibacterial filter. The system is moderately pressurized.
- **High quality mechanical** design allows smooth working function an extremely quiet action, thus allowing use in any environment.
- Ability to print under the printing plate, allowing decoration in every position on the large sized objects.
- System is designed to guarantee a long life with **very little maintenance**.
- Most of adjustment functions can be carried out via the user-friendly numeric keyboard with alphanumeric display.
- Multi program memory and countdown facilitates easy set-up and changeover.
- Ability to position one or more printing heads to be chosen among machine models like: Logica Mimicro, Logica Micro Compact, Logica Micro II, Logica Macro II, Logica Velocina.
- **Easy accommodation of additional processes** such as part pretreatment, vision inspection for print quality check, UV ink curing, automatic pad cleaning thanks to wide available room.



Example of round/oval-section PP/PE bottles for shampoo and shower gel



Example of baby bottles in PC/PP of various sizes and shapes



Example of medium/small glass bottles for perfumes and nail varnishes

TECHNICAL DATA

- **Operation:** electric with numerical control
- **Printing force:** up to 16.000 N according to the model
- **Maximum printing speed:** adjustable up to 5000 c/h(*) depending to the model
- **Maximum dia. ink cup:** 195 mm (with Logica Macro II)
- **Number of colours:** up to 6 (with one print head)
over 10 (with combined print heads)
- **Vertical stroke:** Depending to the model
- **Maximum pad height:** Depending to the model
- **AC supply:** 220/240 V – single phase – 50/60 Hz o 400 V – triple phase 50/60 Hz
- **Average consumption and weight:** Depending to the model

(*) the printing speed shown above is the maximum achievable; it will decrease increasing the vertical pad strokes and entering waiting times in the cycle. The piece conveying systems also influence the maximum printing speed.

Logica Platform mod. S
N. 1 print head Logica Micro II for printing of painted metal knobs with double rotary table, U.V drying, vision inspection for quality print control, automatic pad cleaning and air treatment system.





Example of packaging for the pharmaceutical industry

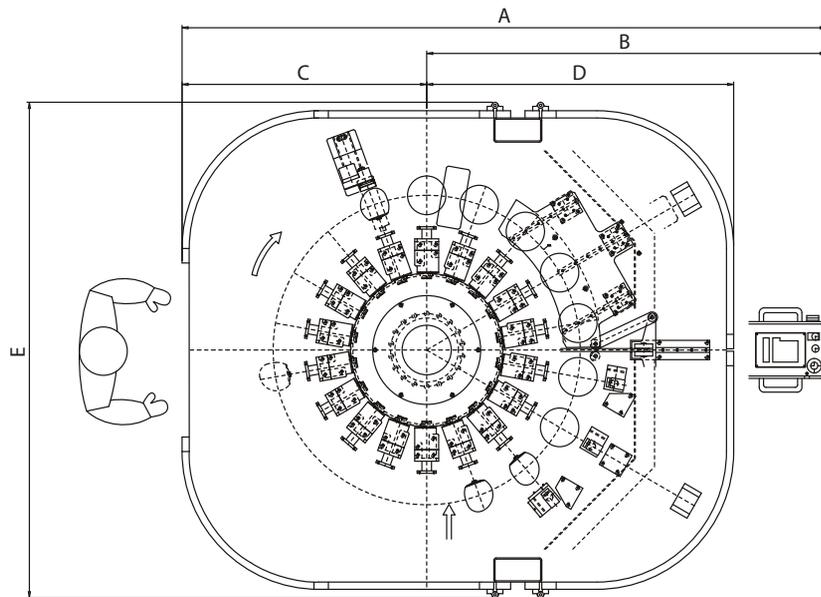
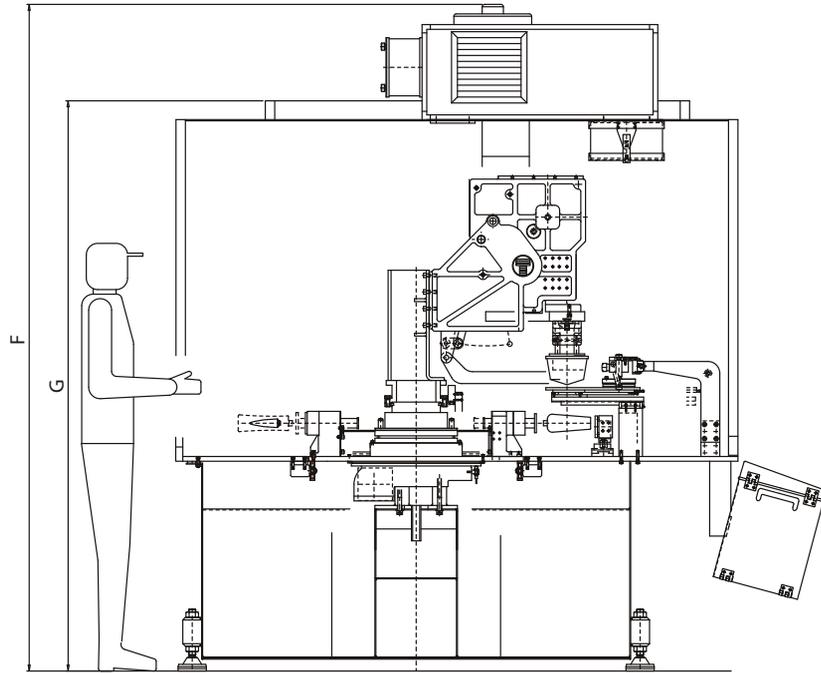


Example of square-section PP/PE bottles and flasks for cosmetic products



Example of mascara containers

LAYOUT



All measurements are in millimetres

MODEL \ SIZES	A	B	C	D	E	F	G
PLATFORM S	2300	1550	750	1150	1700	2650	2250
PLATFORM M	2700	1680	1020	1280	2050	2800	2400
PLATFORM L	3200	2000	1200	1600	2400	2800	2400



Example of square and rectangular covers for cosmetic packaging



Example of lids for round-shaped cosmetic packaging flat and convex surfaces



Example of crème jars



Example of PP/PE packaging for deodorants



Example of caps for lipsticks, mascara and perfumes

AN APPLICATION AMONG THE POSSIBLE HUNDREDS

Logica Platform mod. S

Object: conical pot in PP

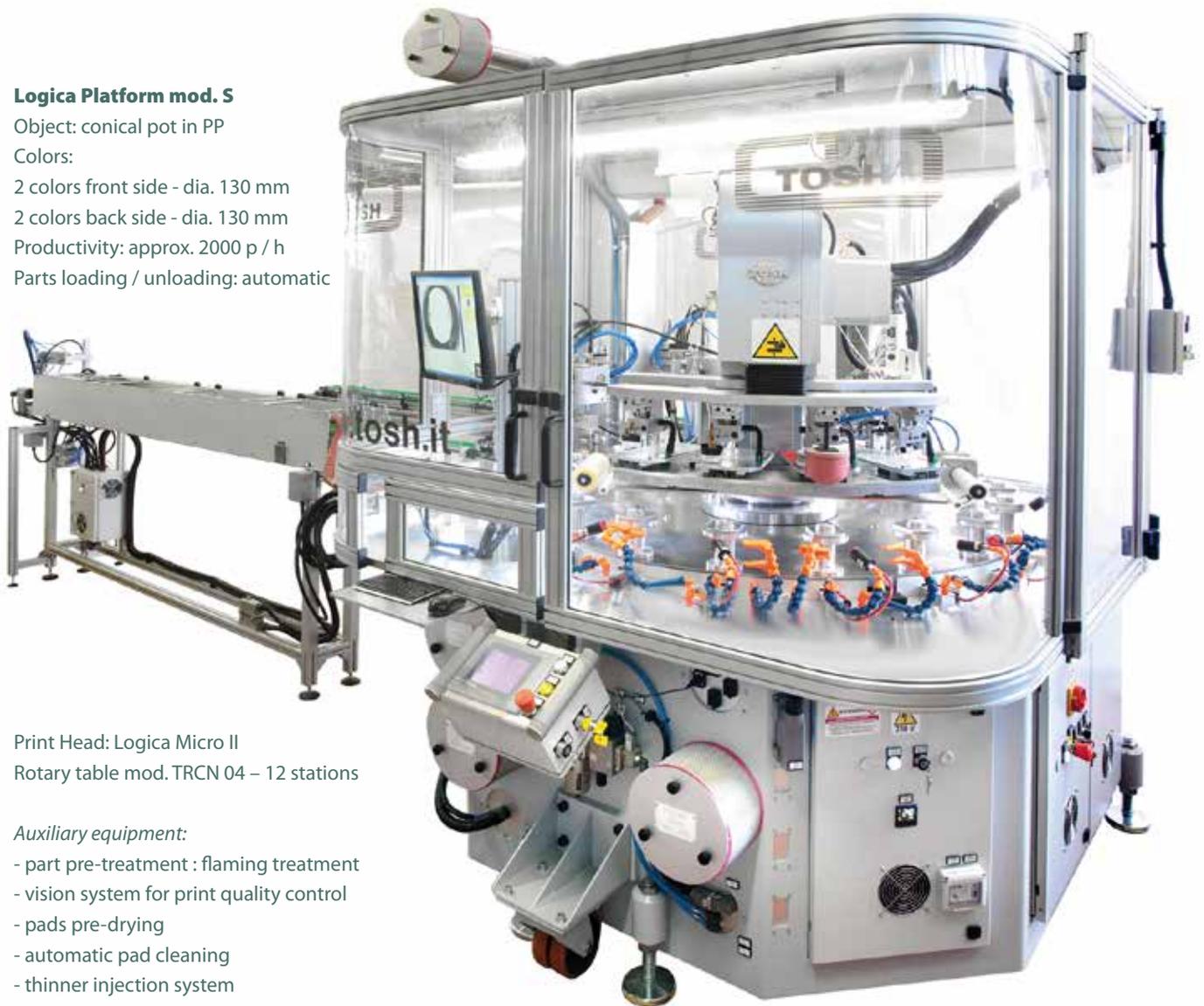
Colors:

2 colors front side - dia. 130 mm

2 colors back side - dia. 130 mm

Productivity: approx. 2000 p / h

Parts loading / unloading: automatic



Print Head: Logica Micro II

Rotary table mod. TRCN 04 – 12 stations

Auxiliary equipment:

- part pre-treatment : flaming treatment
- vision system for print quality control
- pads pre-drying
- automatic pad cleaning
- thinner injection system
- piece drying device



Logica PLATFORM

The most advanced printing system.



SINGLE PRINT HEAD



MULTIPLE PRINT HEAD



HOT STAMPING



RADIAL CLICHÉ



REVERSE RADIAL CLICHÉ



DOUBLE TRCN



PROTRUDING TRCN



CENTRAL TRCN

Print heads

Logica Mimicro
Logica Micro Compact
Logica Velocina
Logica Micro II
Logica Macro II

Other printing processes:

- hot stamping
- laser
- inkjet
- ...

Cliché supports

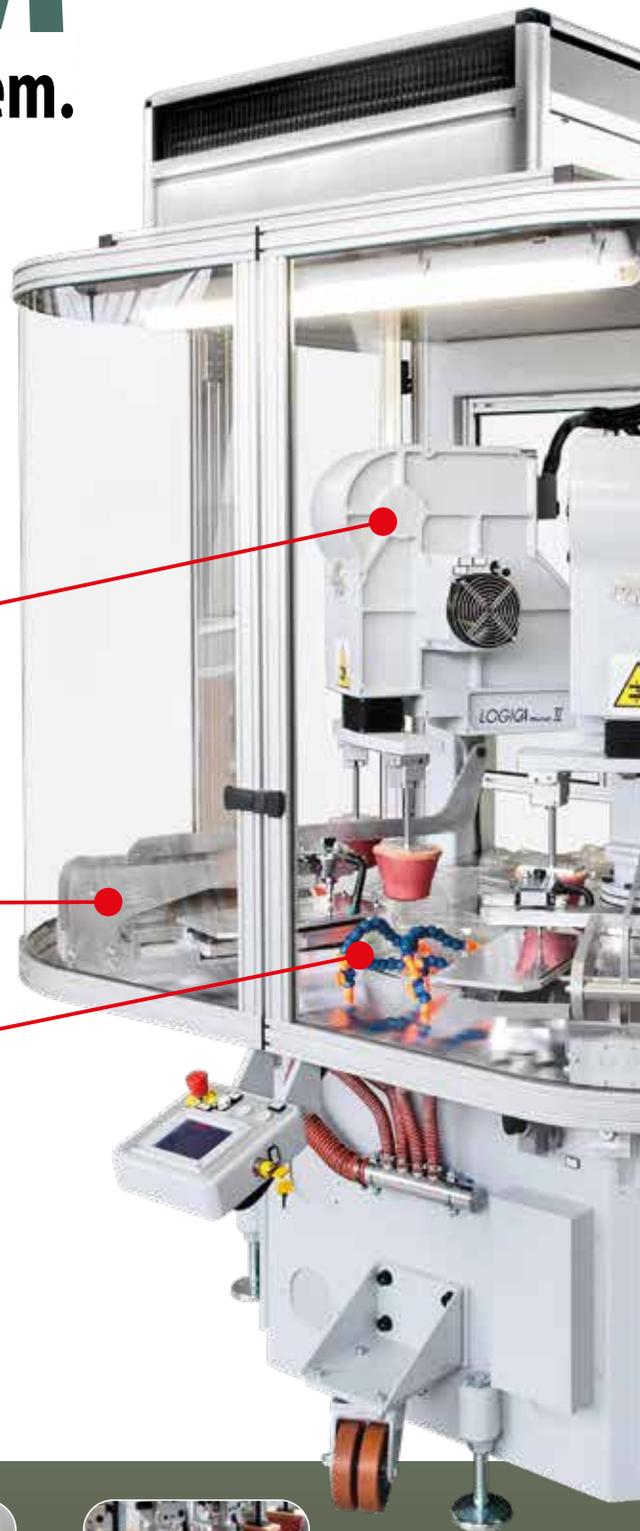
- radials cliché
- radial reverse cliché

Rotary tables

- mod. TRCN 04
- mod. TRCN 06
- mod. TRCN 10

With different top plate diameter
and number of stations (fixtures)

Central or protruding
top plate position



Unprecedented modularity for industrial applications.

Easy integration of multiple print heads, more auxiliary equipment and processes to create a tailor-made system in order to meet any production requirement with the highest mechanical rate and obtainable print quality.



Safety guarding

- With photoelectric barriers
- open top
- Closed top equipped with a special air filtering treatment (cleanroom type)

Fixtures

- static
- rotating with static tailstock
- rotating with dynamic tailstock for high production cadences
- centralized vacuum system
- piece register
- parts inflating device

Auxiliary equipment

- parts pre-treatment (flaming, corona or plasma)
- vision system for print quality control
- automatic parts loading / unloading
- pads pre-drying
- automatic pad cleaning
- thinner injection system
- piece drying device UV included
- devices eliminating charges electrostatic



STATIC FIXTURE



ROTATING FIXTURE



CENTRALIZED VACUUM DEVICE



INFLATING DEVICE



FLAMING DEVICE



VISION SYSTEM



PAD CLEANING DEVICE



AUTOMATIC DILUTION DEVICE



U.V.



AUTOMATIC LOADING DEVICE



Example of objects for different sectors: kitchen items, leisure time, toys, food packaging



Example of aluminium caps



Example of plastic glasses (PS/PP)

Why you should choose **TOSH** pad printers: the advantage is “built in”

From what you will read below, do not expect a dry document of facts and figures alone. There is plenty of technical info, which make you clearly understand the design philosophy of TOSH equipment.

If you have never put your hands on a piece of TOSH equipment, you have never worked with something special and innovative.

TOSH machinery combines speed, flexibility and power unlike any other pad printing equipment.

Every aspect is designed with purpose and function in mind.

Over the intervening years we've worked on thousands of applications with customers whose skill levels range from expert to non-existent.

We've answered the question ***"Why should I buy your machine?"***

at least a thousand times. The fact is that there are hundreds of reasons to trust your production to a TOSH machine.

With this document, we have tried to create an exhaustive list of those features that put us far above our competitors.

Our equipment are designed from the ground up without compromise.

That is the true TOSH advantage.

Just the facts

Each piece of TOSH equipment is conceived, designed and built as a **modular** building block. There are no “uni-tasking” machines in the product range.

Individual components can be combined in various combinations to achieve a wide **variety of tasks**. All equipment has a clear upgrade process in terms of speed and flexibility.

From the rigor of this design philosophy results design solutions that satisfy a broad range of customer demands. There are plug in application solutions in this case there is no need to re-invent the process, nor to force a marginal solution because our equipment already have the **flexibility** to do the job that needs to be done.

Logica Platform mod. S
N. 1 print head Logica Micro II 4 colors and n. 2 hot stamping heads for the decoration of lids for cosmetic packaging, fully automatic.



Mechanical advantages

Cast light alloy or electro-welded steel body

TOSH designers prefer that every aspect of the machine serve its final purpose: printing. One of the key aspects of accurate, high quality, high speed printing is rigidity, starting from the basic chassis of the machine.

Torque, whip and vibration cause distortion. Torque, whip and vibration force the operator to slow the machine down. In essence, these factors require you to baby the printing process. By employing a tough cast light alloy or electro-welded steel body TOSH starts off on the right foot. Typical pad printers use a bolted assembled chassis while every material that goes into a TOSH machine is conceived to be rigid. Bolted assembled chassis is prone to feeling the effects of torque, whip and vibration; while a heavy duty machined casting eliminates these problems.



All electric drive

Every part of TOSH equipment is all electric. No compressed air is necessary to run any of our print heads or conveying accessories.

As long as you have electricity you can run TOSH equipment. This makes the machine substantially productive and energy efficient.

Preventative maintenance on TOSH equipment is nearly eliminated. Without cylinders and their associated issues TOSH equipment requires very little care. There is no worry about filters, water or oil in the lines, seal failures, gummed up valve banks, etc.

Once you've programmed a TOSH machine, the cycle remains the same until you change it. If you've ever set up a job on a pneumatic pad printer you'll know that changing the speed, the machine often changes the stroke and printing force. Cylinders take time to fill and settle. Variations in compressed air line pressure and volume will effect print cycle speed and print quality. With an electric drive you are guaranteed smooth consistent application of force at extreme production cadences.





Linear guideways

In order to take full advantage of the robust construction of our printer bodies, as well as the power and speed of our all electric motors, TOSH machines only use the best linear bearings for motion control.

A linear guideway consists of a hardened steel rail and a saddle with recirculating bearings and provide superior control and performance.

Linear guideways can achieve higher precision linear motion when compared with a traditional slide or shaft. Because of the way the saddle is bound on the rail, linear guideways can take forces in both the vertical and horizontal directions. This greatly enhances moving accuracy as well as stability when under load.

High positional accuracy

When a load is driven on a linear motion guideway, the friction between the load and the bed is rolling contact rather than a sliding one.

The difference between dynamic and static friction is very small. Therefore, there should be minimal slippage while the load is moving.



Long life with high motion accuracy

With a traditional slide, inadequate lubrication causes wear between the contact surfaces, which become increasingly inaccurate. In contrast, rolling contact has little wear; therefore, machines can achieve a long life with a highly accurate motion.

High speed motion with low driving force

Because there is little friction, only a small driving force is needed to move a load. This allows us to size motors based on the force needed for the print job, not for overcoming friction.

What all of this means in terms of a TOSH pad printer is that torque, vibration and whip are minimized or eliminated. This improves print quality and allows the machine to run at higher production cadences. The machine is going to go exactly where you program it to go at the speed you want it to travel. It can easily reverse direction and accelerate and decelerate without taxing the motor or increasing vibration.

It also means that your print tolerances typically will be +/- 0.01MM per color. Accuracy will not degrade over time as it could happen more quickly with pneumatically driven motion systems. Maintenance on a linear guideway consists of pumping clean oil through a standard nipple about once a year.

Numerically controlled motors

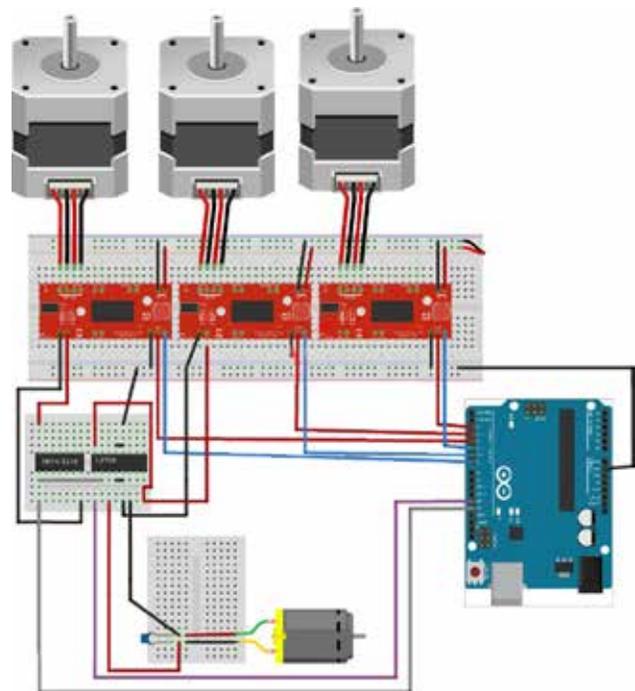
All TOSH machinery is stepper and/or brushless motors driven.

TOSH was the first company in the industry to employ numerically control motors on its standard equipment. The first all-electric TOSH machine was introduced in 1984. This means that TOSH has a 35+ year track record of installing, programming and servicing all electric pad printing equipment. For other companies numerically controlled motor driven machinery is a risky change of direction, for TOSH it is an engineering tradition dating back to the inception of the company.

Properly programmed, numerically controlled motors provide precise control over speed, stroke and force. Once a TOSH machine is programmed to go a certain distance, at a certain speed it will do this until you change the program. This is clearly untrue of pneumatic systems which are subject to variations in air volume and pressure.

When compared with pneumatic components numerical control motors are substantially more reliable and require no specific maintenance. There are no wear components in N/C motors, no seals, no risk of contamination with dirty air.

Numerically controlled motors are simple, there are no valves to adjust and no mechanical stops to fiddle with.



True "overtuned U Shaped" motion

The motion of a traditional pneumatic pad printer is driven by two cylinders. The horizontal cylinder moves the pad front to back and the vertical cylinder moves them up and down. This motion has been described as "overtuned U Shaped". In fact, this is not the case because there is no curve in the motion.

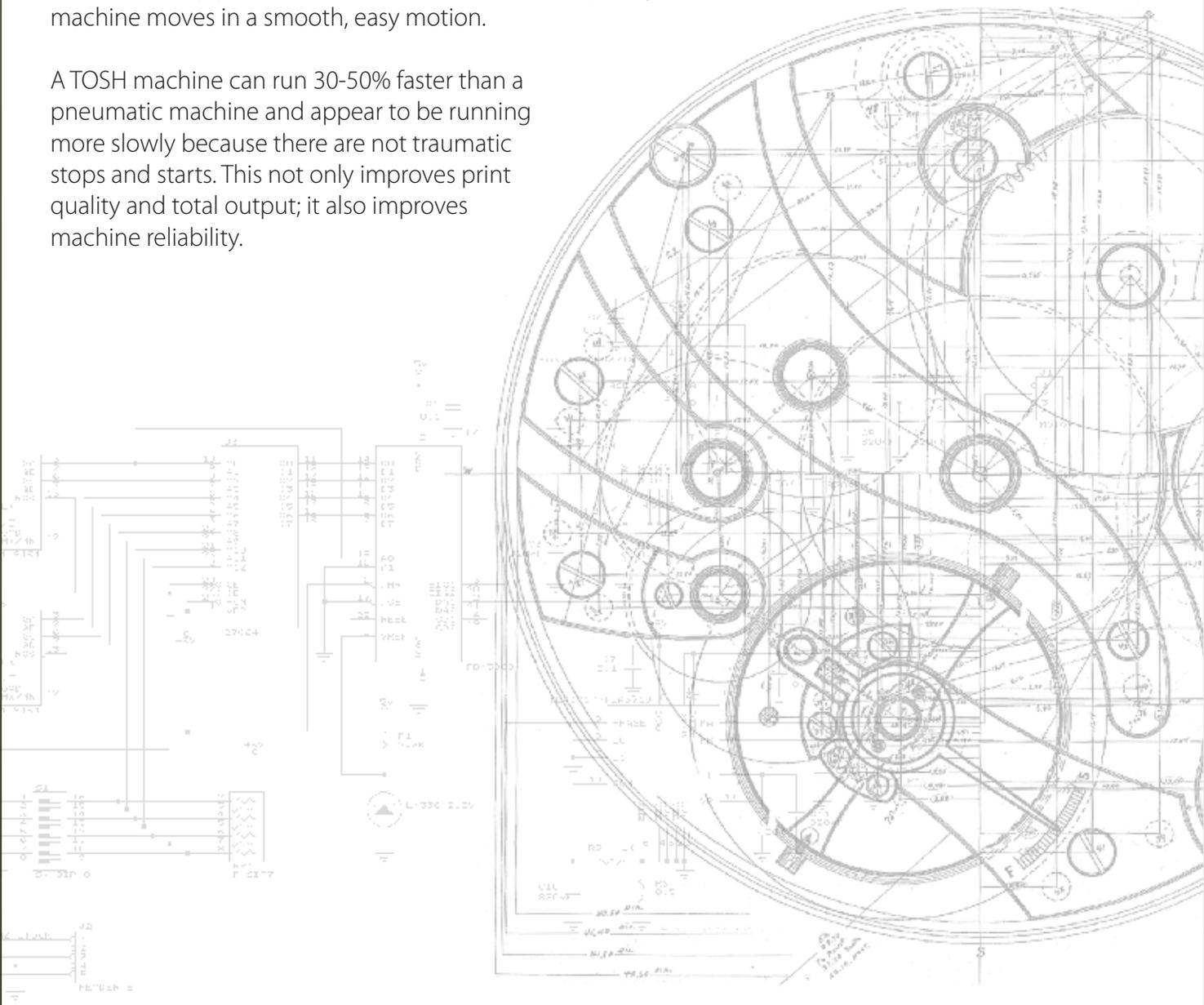
The cylinder slams down onto the plate, up to home position, then forward to print position and down onto the part. It would be more correct to call it a "square angles shaped" motion. This motion, by its shape, directs all the motions of the machine into very jarring stop points and thus increases vibration. This effect is so well known that machines are set to slower speeds to allow the pads to settle before pick up and printing, otherwise the vibration of the stop points will transfer into the image and result in blurriness and distortion.

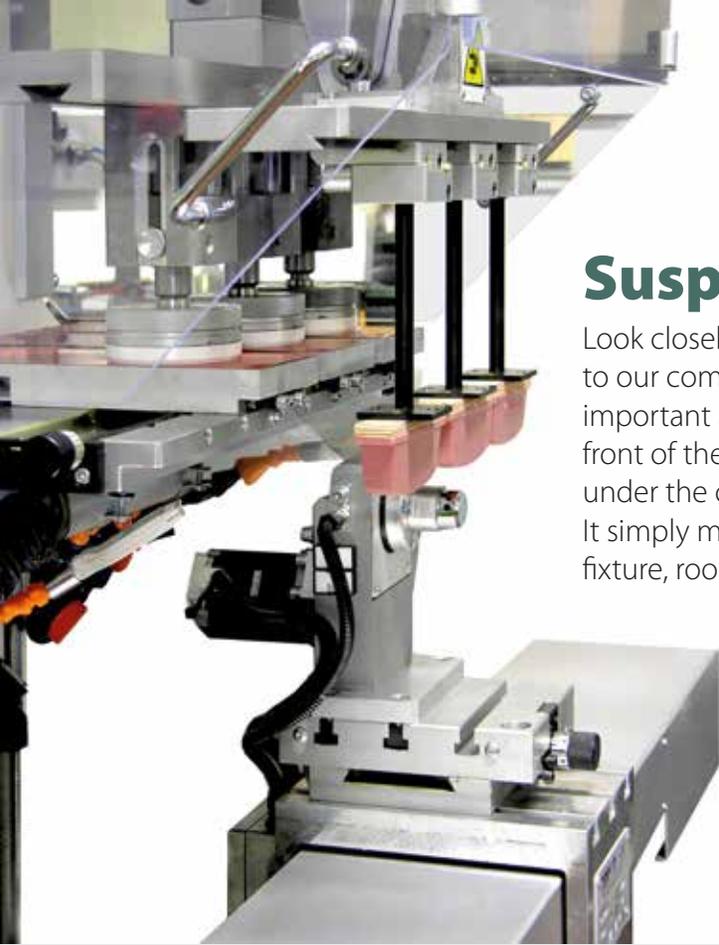
TOSH with Flexible series machines has solved the problem in a different way. Rather than slow the process down to work with the limitations of poor design, TOSH has developed **a truly "overtuned U Shaped" motion.**

TOSH's numerically controlled motors drive a main cam. This is done either via a double belt/ chain drive, or via a direct drive gearbox depending on the machine model. This main cam moves the pads both vertically and horizontally simultaneously through the doctoring motion.

This means that the momentum of the machine is mitigated and there is no stop point to create the vibration; consequently, the machine moves in a smooth, easy motion.

A TOSH machine can run 30-50% faster than a pneumatic machine and appear to be running more slowly because there are not traumatic stops and starts. This not only improves print quality and total output; it also improves machine reliability.





Suspended cliché support

Look closely at the brochure for your TOSH machine and compare it to our competitor's. You may notice something that doesn't seem so important at first. The knee on competitive equipment starts at the front of the cliché. TOSH cliché supports are suspended and open under the cliché. What does this mean for you?

It simply means more room: room for your part, room for your fixture, room for your conveyors.

If you're printing a small image in the middle of a big part, on competitive equipment you'd need a big machine to gain the reach necessary. On TOSH equipment because even our smallest machines are wide open under the cliché support, you can reach into the middle of parts that would be impossible otherwise.

Flexible cliché support/cup support

On TOSH equipment you have a blank slate to set up your ink cups and pads where you want them. A TOSH machine isn't simply a 4 color 90mm machine on a fixed pitch. You can move your plates and cups around on the cliché platform where you need them and you can mix and match cup and cliché sizes as needed.

Proprietary controls and software

If the numerically controlled motor is the heart of a TOSH machine the controller is obviously the brain. TOSH uses proprietary controls and software to run all of its machinery and conveying accessories. TOSH was (and still is) building machinery unlike any of its competitors. Off the shelf programmable logic controllers are too expensive, cumbersome and slow for TOSH modular equipment. TOSH designs its controls from the ground up for the pad printing process. Over thirty-five years of continuous development, field testing and improvements have led to the most advanced controls package in the pad printing world with a sustainable and stable upgrade path for every machine built.

Built in upgrade path

In modern manufacturing, production requirements change constantly. Today a table top machine with a 2 position indexer might suit your needs exactly. In a month, you could need a high speed rotary table. Rather than having to go to a third party vendor for conveying accessories, TOSH already has a plan in place for you. Since TOSH builds all of its own conveying accessories it is only a question of a few hours of assembly to add a rotary table and reprogram the software. Every TOSH machine comes with built in controls for a range of conveyors and parts position devices.

Eco/utility friendly

It's a simple formula:
all electric = GREEN.

We mean this not only in terms of the environment, but also in terms of your wallet. Compressed air is one of the largest secret sources of waste. Its generation, use and storage is incredibly inefficient on every level. It starts with the fact that it requires the user to take a perfectly functional power source, electricity, and convert it into another form. If you've stood near a compressor at a factory, you know how much energy is wasted in this equation. That heat you're feeling didn't generate itself. It is pure unadulterated waste. From there you need to "condition" this new power with a chiller so that it doesn't destroy your machinery down stream with moisture.

How much does that cost to run day in and day out? Once it leaves the tank, compressed air fills your factory lines and, well... leaks out of every single joint and connector. 30% of compressed air generated in a typical factory is lost due to leaks small and large. Think about that. After the inefficiency of converting electricity to compressed air, you'll lose another 1/3 before it even gets to a machine! Our smallest machine, the TOSH Mimicro will save you approximately € 500.00 per shift per year in operating costs. This number is purely related to the electrical usage. Maintenance of the compressor and chiller is not factored in. As machine sizes increase, savings do as well in proportion to the amount of force generated by the machine and the number of cycles per hour. We'll be happy to work up an energy audit for you on any system we provide.

Complete cycle control

Every TOSH machine allows for complete control of the cycle through the keyboard of the machine. This is unheard of on competitive equipment and is a function of TOSH's N/C motors and proprietary software. Included on every machine are:

Independent speed control in every axis of motion

There are 6 motions in every pad printing cycle. Doctoring forward, doctoring backward, pad down over plate, pad up over plate, pad down over part and pad up over part. If you've pad printed, you know how critical these speed are to a quality print. This being the case, why do many manufacturers ignore these controls, or put them out of reach of the operator? TOSH puts them at your finger tips.

Independent delays/timers in every axis of motion

Why slow down the overall cycle, when all you need is a 1/10 second delay to allow the ink to tack off before printing? What if you want to pause on the part for ¼ second to allow the pad to conform to a difficult texture? With TOSH equipment you have the opportunity to program delays before ink pick up, on the cliché, before print and on the part. Once you've used these features to fine tune your process you will never be able to use a machine without them again.

Independent stroke adjustment in 1mm increments over the cliché and part

Have you been using limit switches and knobs to adjust your strokes?
Does your machine have no adjustment at all? Why not just tell it where you want it to go?
With a TOSH machine, if you need 1mm more or less compression, you push a button and you're there. Exactly what you need, when you need it.

Self-learning

When setting up your machine for a new application, TOSH software gives you the flexibility to walk the machine through the cycle.
By holding a button you can slowly jog the machine into position, hit enter, and the machine learns the stroke.
Training mode allows you to quickly set up a new program which can be stored to memory in seconds.

Stepping mode

All motions of the machine can be run independently when the machine is put into stepping mode.
Isolate doctoring, pad stroke, or indexing so you can see exactly what your machine is doing.
This can be run at full speed, or in incremental steps.

Multi languages

All TOSH machines are meant to travel. They can be programmed in English, Italian, Spanish, German, Portuguese, French and Swedish...

You can toggle between these languages as needed.



Multi-program memory

Programs can be stored in the memory of the machine for immediate recall.

Easy to automate

TOSH machines are easy to automate. If you are using TOSH conveyors, you can mount the accessory and add the necessary driver card and call up the program that is pre-loaded into the controls package. If you wish to integrate TOSH equipment with your line, there are all the necessary inputs and outputs present, built in for your convenience.

Counters

TOSH machines have a number of useful counter features. There is an overall life cycle counter for the machine itself. There is also a batch counter to help you keep track of each job. The machine will also provide you with a live "cycles per hour" counter so you can see how much production you should expect from a certain set up over the course of a shift.

Conclusion

If you've heard the phrase "all pad printers are the same" we can affirm that's not true.

With all of these configuration features, TOSH makes many impossible print jobs possible. We believe it is critical when you sit down to make a final decision on your pad printing equipment purchase that you take into account not just the "bottom line" price, but the real production cost for your equipment.

We know that a zealous commitment to efficiency, speed and precision are your only chance at fending off the competition.

It is a fact that labor cost is ten times higher in our country than in other manufacturing places; it is our suggestion to level the playing field by providing the best tools for the job.

Increase your real output, decrease your set up times and watch your margins improve.

Isn't this what real productivity is all about?



Logica Platform mod. S
N. 1 print head Logica Micro II with protruding rotary table, to facilitate the manual loading and unloading of the pieces.

Since 1982