EN

TOSH

Machines, consumables and automation for objects printing

Serie Logica
HighSpeed
PAD PRINTING MACHINES

Logica Mimicro N

Logica Mimicro NS

Logica Mimicro N90S

Logica Micro Compact

Logica Micro II

Logica Macro II

100% Made in Italy

"Thinking at a pad printing machine
with highest production cadences"

Serie Logica **HighSpeed**

Particular attention has been dedicated by TOSH to the applications where high rates of production are called for. With nearly all of the units in this product range, from the smallest, **Logica MiMicro** to the largest **Logica Macro**, a production tempo of up to **5000 cycles / hour** may be reached.

The creation and development of this line of machines has for the most part interested those clients who process jobs continuously for a certain period of time with the same item. The units are configured for printing more than one piece at a time in the same machine cycle, thereby obtaining the best production performance.

With these results, thanks to the technological evolution of the **Logica HighSpeed** machine series, today TOSH is able to establish the pad printing process in applications from where it had always been excluded due to limits in mechanical construction.

These units represent that determining factor which conditions the level of the client's competitiveness to their benefit:
produce more, better and at a lower cost.

N. 2 **Logica Micro Compact** 1 colour with automatic pad cleaning device on numerically controlled rotary table

Four colours radial plate configuration with numerically controlled rotary table

Main features

- Fully electrical operation
- Ability to print up to 9 colours (with Logica Macro model)
- High mechanical cadence. With some models of the range production tempo of up 5000 cycles/hour can be reached.
- Mechanical movements are motorized via numerical control, guarantee high precision providing complete flexibility of operation and simplicity without compromise. Self-diagnosis.
- Its exclusive electric operation presents a considerable advantage compared to an equivalent pneumatic machine.
- Manufactured from light alloy and special steel.
- Eco-friendly. Due to its available hermetic ink system preventing solvent evaporation.
- Independent adjustment of speeds to each of the six strokes, ability to memorize the different and most important phases of the printing cycle.
- Changeover time reduced to a few minutes, thanks to the considerations given in the design concept to apply ergonomic principles to the system.
- Due to the mechanical design quality, a guaranteed smooth working function results in 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.
- The manufacturing it was also conceived to guarantee a long life of working without maintenance.
- All adjustment functions can be carried out via the numeric keyboard with alphanumeric display.
- Countdown function and memory of all different work programs for easy set up.
- Ability to print on uneven surfaces of the same object, with easy adjustment of the pad stroke via the keyboard.

Serie Logica
HighSpeed

Logica Mimicro N

OPERATION	electric with numerical control
PRINTING FORCE	500 N
MAX PRINTING SPEED	adjustable up to 3600 c/h (*)
NUMBER OF COLOURS	1 - 2
MAX INK CUPS	60 mm
INK CUPS HOUSING	up to 2 dia. 60 mm
VERTICAL STROKE	102 mm
MAX PAD HEIGHT	90 mm - 57 mm (with pad shuttle system)
AC SUPPLY	220/240 V - single phase - 50/60 Hz
AVERAGE CONSUMPTION	about 100 W (basic model)
WEIGHT	about 50 Kg (basic model)
DIMENSIONS	443x590x743 (h) mm (basic model)

Logica Mimicro NS

Logica Mimicro N90S

electric with numerical control	electric with numerical control
770 N	770 N
adjustable up to 5000 c/h (*)	adjustable up to 5000 c/h (*)
1 - 2	1 - 2
70 mm	90 mm
up to dia. 70 mm	up to 2 dia 90 mm
102 mm	102 mm
90 mm - 57 mm (with pad shuttle system)	90 mm
220/240 V - single phase - 50/60 Hz	220/240 V - single phase - 50/60 Hz
about 100 W (basic model)	about 100 W (basic model)
about 50 Kg (basic model)	about 50 Kg (basic model)
443x590x743 (h) mm (basic model)	443x590x743 (h) mm (basic model)

(*) The above mentioned printing speed is the max achievable and will reduce when the vertical pad stroke is increased or when delay times have been programmed into the cycle.
The maximum printing speed also depends on the parts loading device.

Serie Logica
HighSpeed

Logica Micro Compact

OPERATION	electric with numerical control
PRINTING FORCE	1600 N
MAX PRINTING SPEED	adjustable up to 3600 c/h (*)
NUMBER OF COLOURS	1 - 2
MAX INK CUPS	130 mm
INK CUPS HOUSING	up to 1 dia. 130 mm or 2 dia. 115 mm
VERTICAL STROKE	118 mm
MAX PAD HEIGHT	100 mm
AC SUPPLY	220/240 V - single phase - 50/60 Hz
AVERAGE CONSUMPTION	about 200 W (basic model)
WEIGHT	about 350 Kg (model in the picture)
DIMENSIONS	1278x1468x1800 (h) mm (model in the picture)

Logica Micro II

Logica Macro II

electric with numerical control	electric with numerical control
3850 N	7000 N
adjustable up to 5000 c/h (*)	adjustable up to 3600 c/h (*)
1 - 2 - 3 - 4 - 5	1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9
130 mm	195 mm
up to 5 dia. 90 mm or 4 dia. 115 mm or 3 dia. 130 mm	up to 9 dia. 90 mm or 5 dia. 160 mm or 4 dia. 195 mm
147 mm	135 mm
120 mm	205 mm
220/240 V - single phase - 50/60 Hz	220/240 V - single phase - 50/60 Hz or 380/400 V - triple phase - 50/60 Hz
about 600 W (modello base)	da 1 a 3 KW
about 525 Kg (model in the picture)	about 400 Kg (basic model)
1150x4500x2200 (h) mm (model in the picture)	1060x1370x2125 (h) mm (basic model with piece-holder bench)

(*) The above mentioned printing speed is the max achievable and will reduce when the vertical pad stroke is increased or when delay times have been programmed into the cycle.
The maximum printing speed also depends on the parts loading device.


LOGICA micro II


TOSH
LOGICA micro II

N. 6 **Logica Macro II** 1 colour configuration with automatic pad cleaning device, centrally positioned on numerically controlled rotary table.

Why you should choose **TOSH** pad printers: the avange 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.

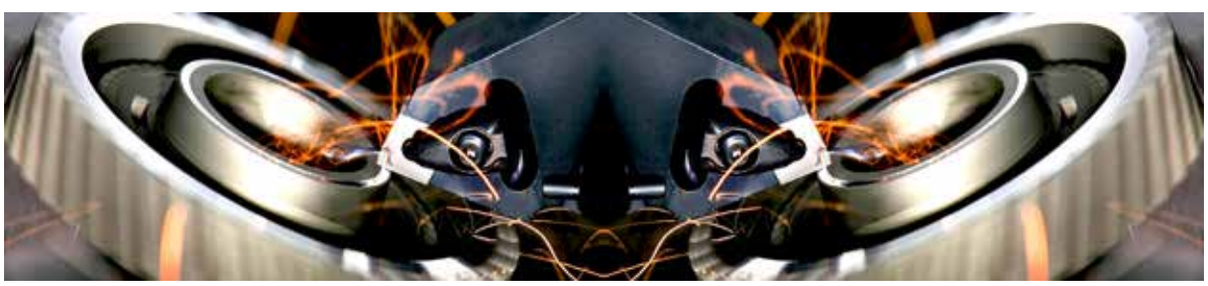
From the rigor of this design philosophy results design solutions that satisfy a broad range of customer demands. There are plug in application solutions in this case there is no need to re-invent the process, nor to force a marginal solution because our equipment already have the **flexibility** to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

Logica Micro Compact 2 colour configuration with automatic pad cleaning device. Kit for installation in production line and remote keyboard.

Mechanical advantages

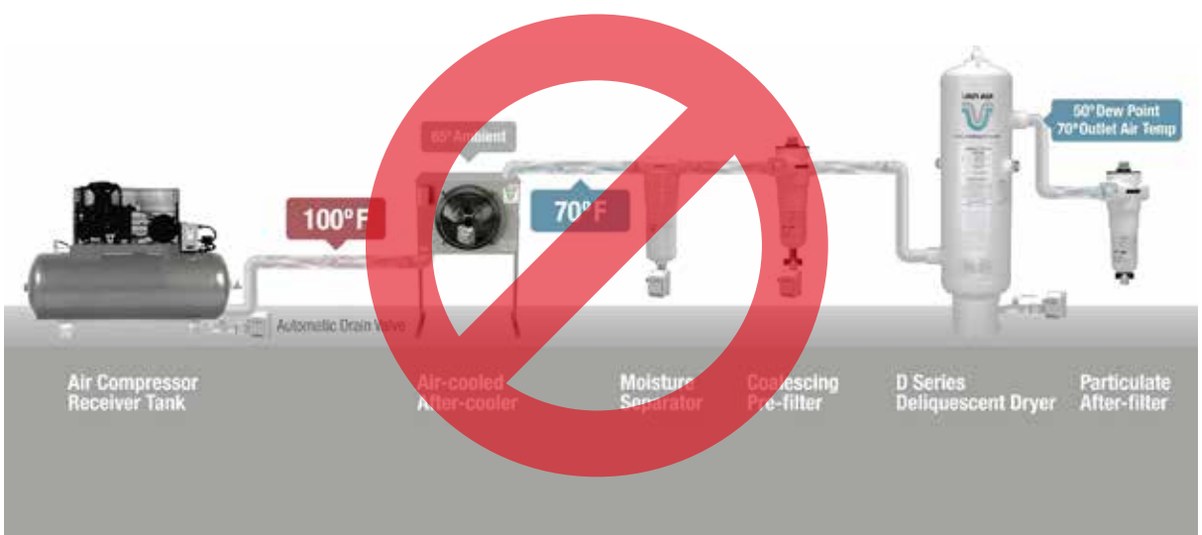
Cast light alloy or electro-welded steel body

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

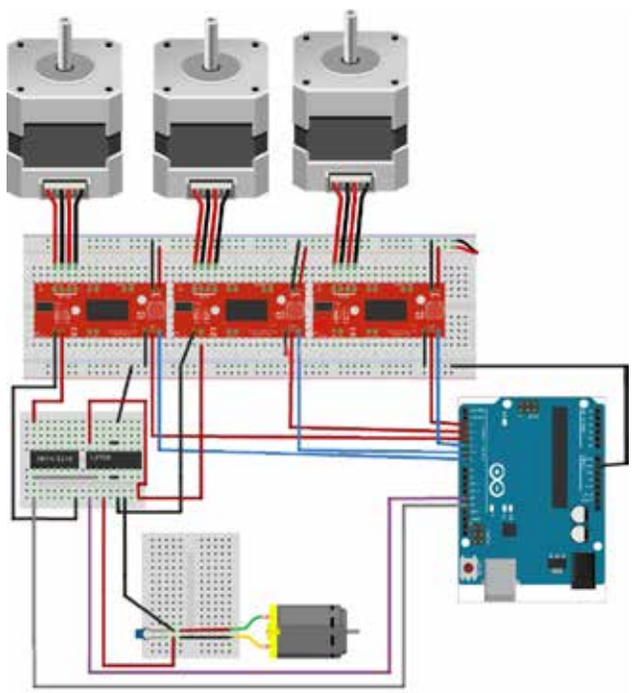
All TOSH machinery is stepper and/or brushless motors driven.

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 "overturned 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 "overturned U Shaped". In fact, this is not the case because there is no curve in the motion.

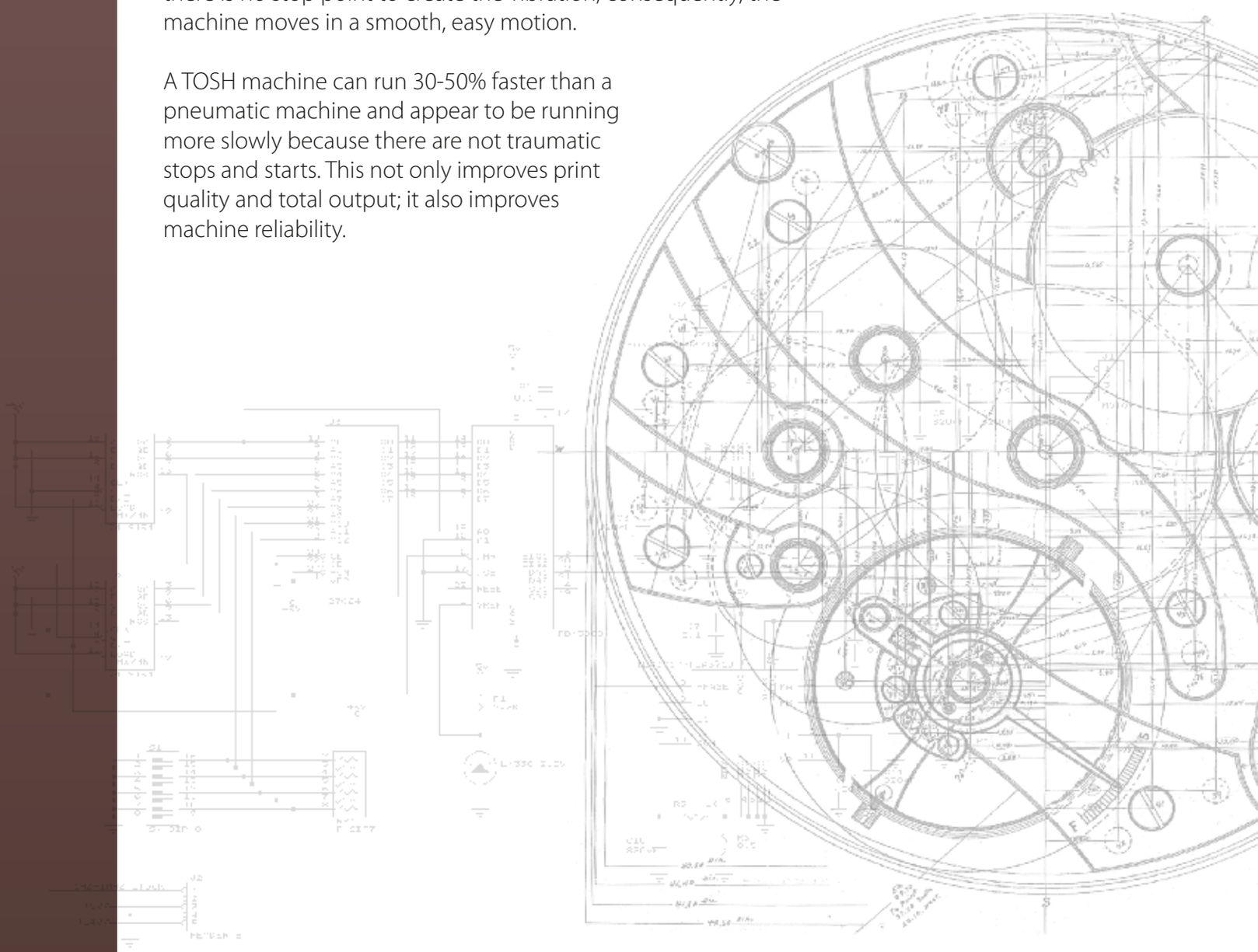
The cylinder slams down onto the plate, up to home position, then forward to print position and down onto the part. It would be more correct to call it a "square angles shaped" motion. This motion, by its shape, directs all the motions of the machine into very jarring stop points and thus increases vibration. 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 "overturned 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?

N. 4 **Logica Micro Compact** 1 colour
with automatic pad cleaning device
on numerically controlled rotary table.

Since 1982

Più di6000
installazioni

tosh.it

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