

News from the Porcelain Jungle

"Press decoration"

Welcome back and thank you for willing to further invest your valued time on this new memo, which you'll realize soon, is slightly different from its predecessors (Porcelain Jungle & Glazed Porcelain Jungle... should you need a copy of these, pls. feel yourself free to ask, I'll be happy to send one over).

Since this is a more *technical* and *focussed* kind of memo (particular technology), it would be best if read after my previous above mentioned "Jungles", should you already be familiar with the different kinds of porcelain in the market, pls. go right ahead and enjoy the reading.

The aim of this memo is to up date you (if you will) with little or no jargon, on the new technological developments that are influencing and quickly changing our business, the Porcelain Tile Business.

Please read this notes attentively, it might turn useful when:

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1. Thinking about "alternative" products
 2. You're presented with one of these technologies by an old/new supplier
 3. You need to properly market one of these technologies
 4. ...just "showing off" with your friends/colleagues...
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In this memo I've decided not to stress the usual Pros. & Cons. on every analysed item, why?

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- a) There're no indisputable Pros or Cons.. In other words if somebody who operates in the low end of the market believes that something expensive is a Con., somebody else who bases his business in the high end market, might see it as a Pro.
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b) Most of these technologies are brand new and not enough information is available to genuinely provide mistake free statements and the last thing I want to do is, planting preconceptions on your mind, since it'll defeat the whole object of my Porcelain Jungle Educational Service.

"News from the Porcelain Jungle" will help us understanding a particular section of the production process too often poorly explained, this process is called in several ways but in order to keep things simple we've called it "PRESS DECORATION" even if as you will understand, little or nothing is carried out in the actual press.

We'll go through some of the most important and known names and brands:

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- 1) Monolithos (Sacmi)
 - 2) Mac (CMF)
 - 3) Tecnoslate (LB)
 - 4) Croma (LB)
 - 5) Format 201 (LB)
 - 6) Picasso (Welko)
 - 7) Twin Press (Sacmi)
 - 8) Continua or/and "Tape Casting" (Sacmi & Oregon Ceramics Services)
 - 9) Grestream (B&T)
 - 10) Laminam/Synterflex (System)
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Other names are available like "Multipres" (Intec) but very similar to the above, so in order to keep things as simple as possible, I've selected only the above 10 kinds.

So if this short premise looks appealing to you, if this whole new memo sounds like a "swell idea", if you believe these pages will make you feel more confident and at ease when talking about Porcelain Tiles, then "sit back and relax" since "the best is yet to come".

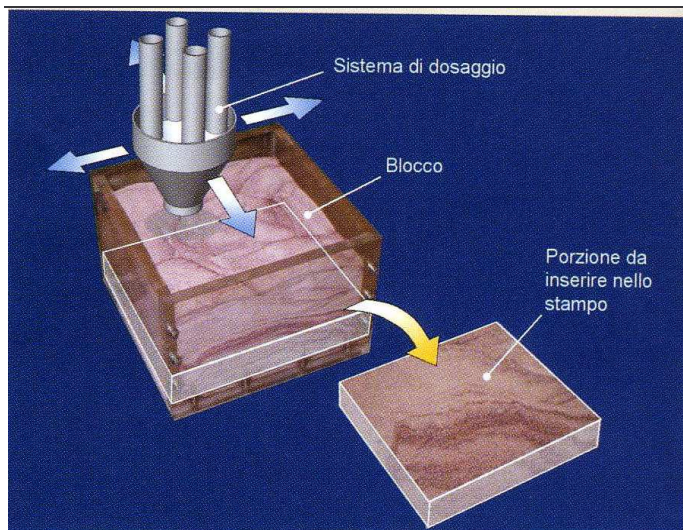
Monolithos

This device allows a full-body porcelain decoration, that can vary from natural stone patterns to geometrical ones.

It works like this:



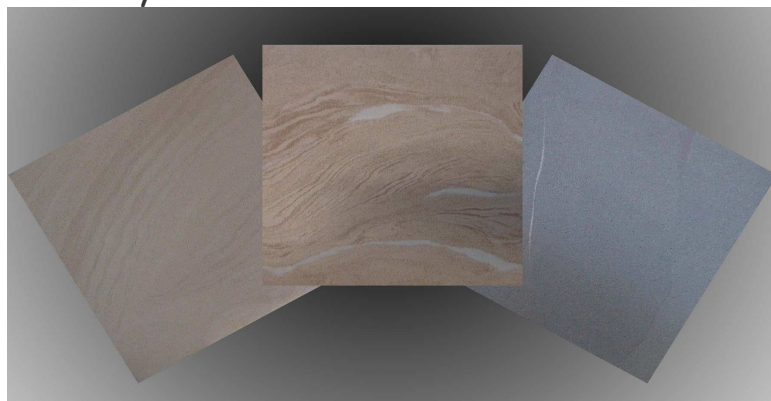
- 1) The dosing system (device with tubes) is programmed to distribute spray dried powders/granules/flakes etc. in a box until filled up and according to the desired effect (limestone, travertine, slate, etc.)
- 2) The block is then sectioned (just like a quarry block) in the drawer and filled up again. Graphic design is very accurate and tile does not need to be polished to see it. (see Technoslate for further explanation).
- 3) Powders are then carefully transferred to the press and then pressed.
- 4) Press/die is then brushed off to avoid mixing of powders and compromise the graphic design of next tile.



Mac



Also this exotic and new machine works similarly to the Monolithos and seeks the same results, i.e. through the soft stratification of powders and granulates which are dropped vertically in a container (as shown in the picture above) and which container then rotates towards the press (to be pressed) while simultaneously another container is filled up the same or completely different way.



Technoslate

This machine provides a through body decoration (veins etc.).

It improves the old technology that forced manufacturers to polish veined through body tiles (before or after the kiln) in order to show the hidden graphic.

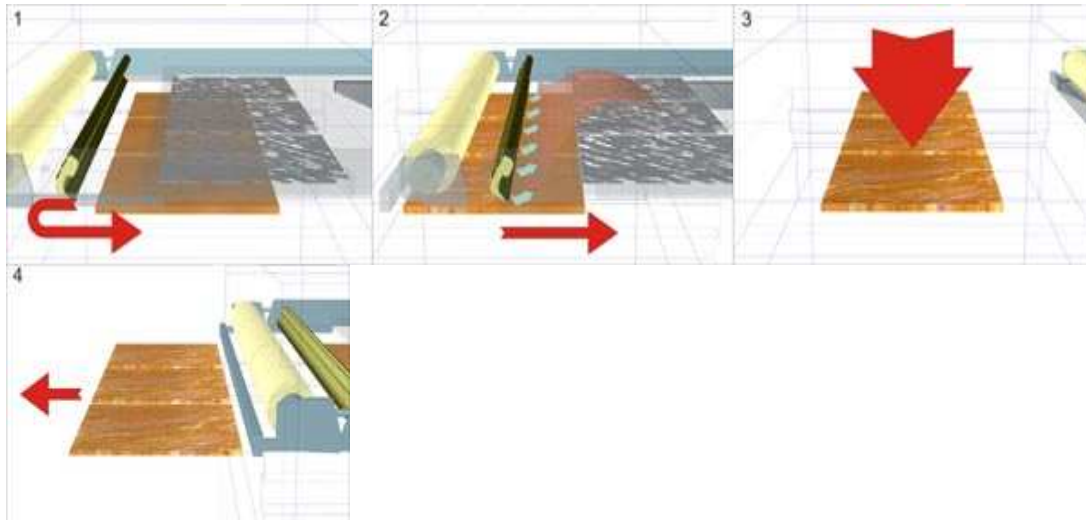
In fact "old" grids distributing raw materials, while withdrawing, levelled the top of the un-pressed tiles, mixing the powders and hiding the decorative graphic.

Technoslate solves this problem, providing through body veined products with both smooth or rustic surface showing the final décor right after the press.



In a nutshell...this is the way it works:

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- 1) grids distribute raw materials & design graphic
 - 2) pressurized air is blown thru. a so called "blade" to discovers the décor
 - 3) tiles are then pressed
 - 4) and ready to be dried, decorated, fired, polished or simply boxed.
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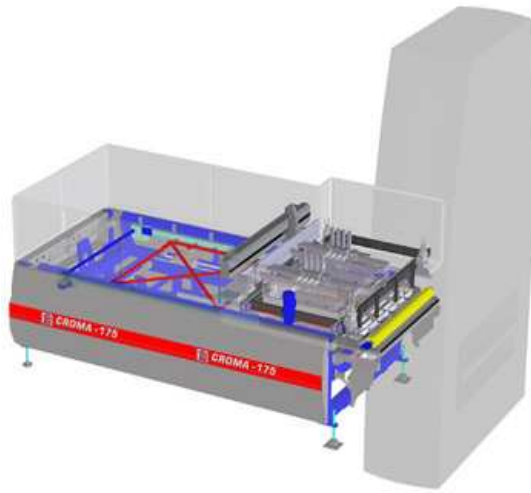
Croma

This appliance is an evolution of the double loading one.



Its purpose is the same of the previous one (visible decoration on mat or rustic tiles without polishing) but operates differently, i.e.:

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- 1) can provide double loading tiles (budget spray dried body + valued micronized topping) and save manufacturing costs.
 - 2) can mix all of the above with spray dried glaze
 - 3) can provide veined products and de-shaded ones
 - 4) can change design avoiding repetition
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Format201

This piece of equipment works similarly to the more famous "Twin Press" and can be lengthened or shortened according to the decorations one wants to provide the tile with.



Let's make it very simple:

- 1) spray dried powders are loaded into container boxes
- 2) on this soft base extra powders and/or small/large grains can be added and for the first time blended together even if of very different shape and consistency.
- 3) a very soft press pushes air out of the tile, slightly compacting it (air flows from bottom in order not to compromise the look). This process is important to avoid channelling of fine glaze or micronized particles once air is pushed out during the pressing stage, in other words air would suck material away and modify the look of the tile.
- 4) tiles undergo multiple dry-glaze applications
- 5) tiles are finally pressed and shaped according to manufacturers needs



Picasso

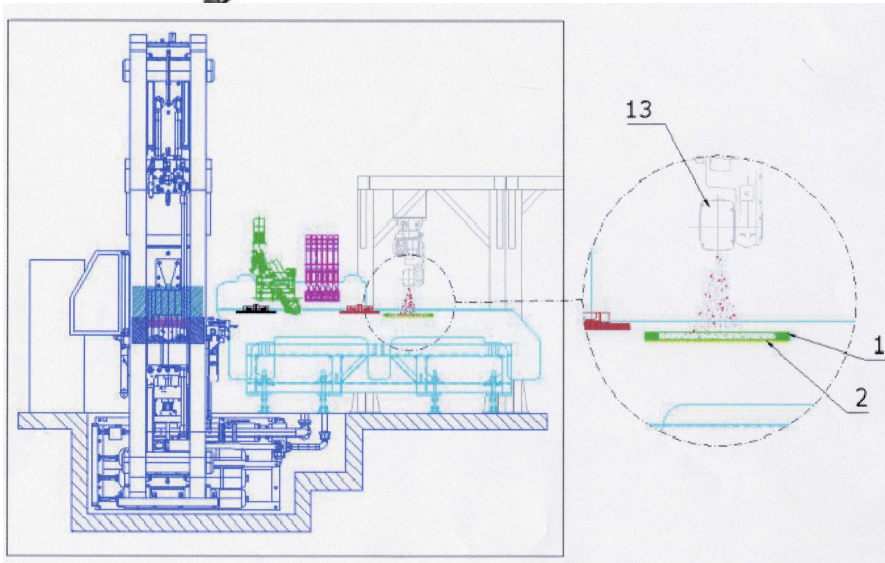
This mechanism is very unique and interesting to analyse.

The aim of this technology is, like the others, to provide a sophisticated product, very close to natural stones ones.

Here how it works:

- Spray dried powders are loaded in a container (green section of the diagram). This soft mix will start its journey going right and eventually coming back towards the press.
- additional dry-glaze or other valued materials are either dropped or inserted (through-body veins) to enrich the this soft mix (purple section).
- The soft mix is pre-compacted (red section) to prepare the tile for further decorations.
- The box reaches the robots' section (each robot manages 4 colours out of a 8 colors palette) and gets additional decoration according to manufacturer graphic design.

- e) The box with the pre-compacted tile makes its way back and gets additional decoration (purple section).
- f) The pre-compacted tile gets softly pressed again (black section) and is transferred to the press (mould cavity).
- g) The box goes back and the tile is finally properly pressed and ready to be dried, fired, etc.

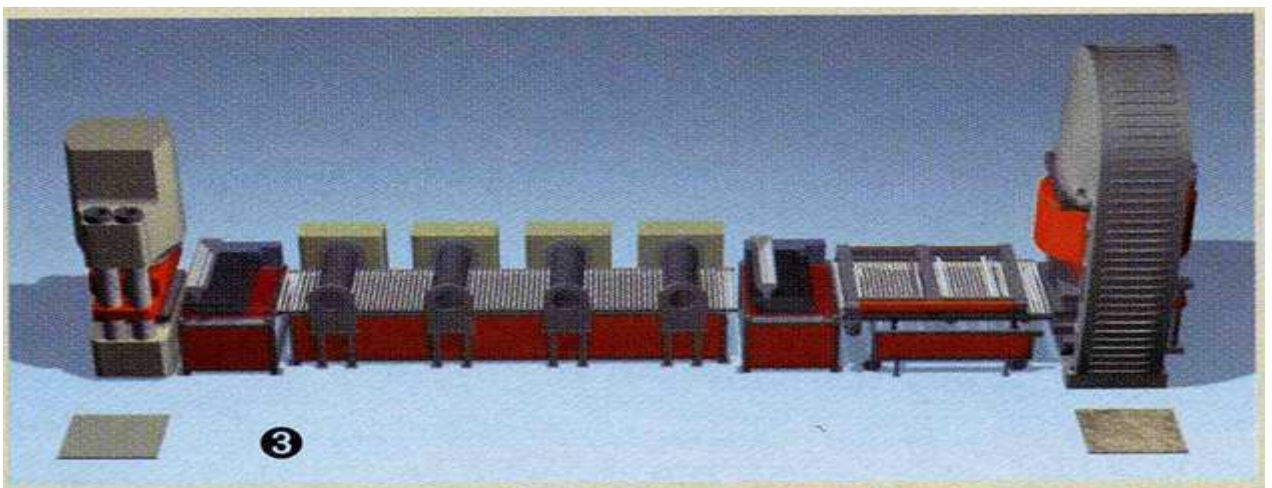


Twin Press

You might be already familiar with this technology since explained in "Glazed Porcelain Jungle", here how it works:

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- 1) the first press is a "light weight" one and all it does is pre-compacting the body of the tile (preparing the body to be decorated). This press can also provide its own decoration through powder mixes (veins, etc.)
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- 2) then the pre-compacted body travels through all sort of decorative machineries (according to the manufacturer's choice and design) mainly dry glaze decorations.
 - 3) The second pressing of the still unfired but fully decorated tile, shapes the piece with any desired structure.
 - 4) Most of the times, the tile is then cut/squared by another device (to avoid shape defects or edge cracks) or in case we chose to press a slab (large format) this very device, can cut the slab in several smaller formats.
 - 5) Now the tile is ready to be dried and fired.
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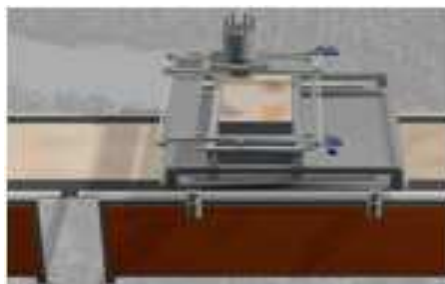
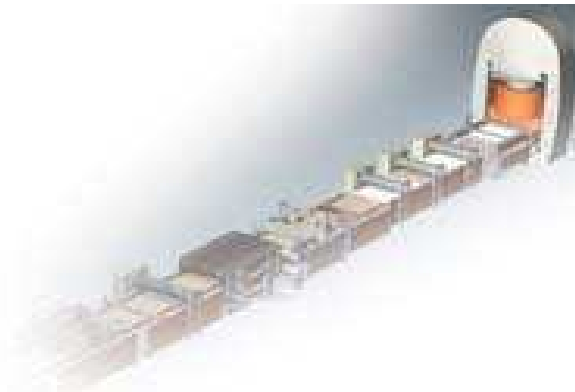
Here is a partial picture of the double pressing line where we can see the first "light weight press" (left), the decorative machines (center) and finally the "shaping heavy weight press" (right).





Continua or “tape casting”

Also this concept aims at decoration diversity (avoiding the use of the grids), high definition of the chosen graphical design, production speed and flexibility.



Here how it works:

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- 1) a layer of soft spray-dried product is deposited on a moving belt, creating body veins, shades etc.
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- 2) this powders go through a "continuous soft pressing device" represented by two belts which does the same job as the "light weight press" of TwinPress.
 - 3) The long pre-compacted slab is then cut diagonally (to size the manufacturer wants) and two blades rectify the edges.
 - 4) Tiles are then decorated (if required) with wet/dry glaze and transported to the press.
 - 5) Tiles are then properly pressed...and ready to go!
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Grestream

Another breakthrough and highly innovative technology is this hybrid device which combines the ancient extrusion concept with the cutting edge pressing and decorating innovations. In a nutshell here how it works:

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1. Preparation and coloration of the base mix (porcelain raw materials)
 2. Pre-compacting through plastic moulding (extrusion)
 3. Slab pre-cutting and overturning
 4. Decoration (when desired)
 5. Re-soft-pressing and final cut
 6. Drying and firing
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The great advantages are:

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- a) All in one device, so no need for press installation or moulds (like in the above cases)
 - b) Possibility of blending different materials in the plastic mix
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- c) Possibility of producing large formats 4'x6' and extra thin slabs (3mm)
- d) Possibility of producing rustic, marbolized, and other products on the same production line.
- e) *Great aesthetic (exp. Polished)* impossible to reach through powder pressing.

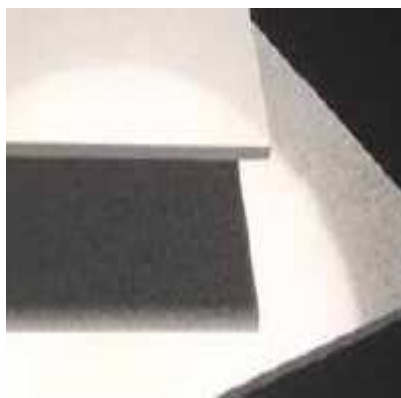
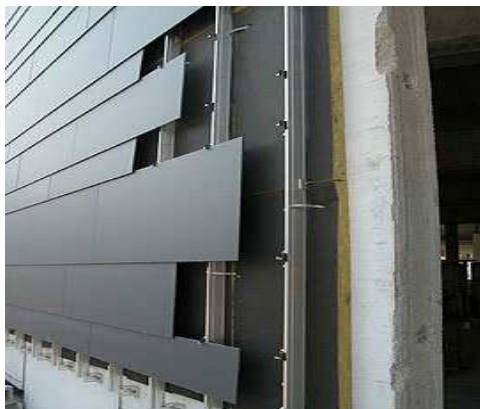


Laminam/Synterflex

Here is one of the best kept secrets. Not a lot is known about this revolutionary and patented production technology. Through a particular pressing process and through an electric firing process (kilns are usually run by natural gas) a sheet of 3' 1/3x10' is produced and as you can see is only 3mm thick, though as hard as porcelain and lighter than aluminium. It's flexible and workable with glass or granite tools. Obtained from the same porcelain plates raw materials, is environmentally friendly since it can be milled and recycled.

Because of its lack of porosity, large size, light weight, flexibility it can be used in tunnel walls (reinforced with fiberglass).

Slabs have a hard surface (Mohs 8) with good grip (R10- ASTM wet & dry over 0,60) and both solid colors or stone effects can be archived.



Pretty amazing isn't it?

As you probably have realized all the above mentioned technologies seek out:

- 1) Natural look
 - 2) Chromatic differences of both surface and body
 - 3) Originality
 - 4) Aesthetic and technical strength
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They also try to overcome "old" technological limitation of the "in-press" decoration (both full body or double loaded), i.e.:

- a) Mingling of the soft mixes during loading or transporting, consequently poor design definition of mat and/or rustic products.
 - b) polishing process (either before or after the kiln).
 - c) sameness of design given by the metallic grids.
 - d) impersonal & shallow look proper of technical products.
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Up to you to decide which one of the above does it with better results and the only way to do it, is to go ahead and look for samples, lay few pcs. down and decide which of the above offers the best marketable combination.

I am aware that we're not exactly comparing "apples to apples" and that once technology might be simpler and less expensive than once other...in fact this is the whole purpose of this memo, to put you in the condition to judge, to allow you to evaluate and promote products with a broader understanding and above all to identify your best fit regardless of the "label" or "mysticism & glamour" it is introduced to you with.

That's about it as far as "PRESS DECORATION" is concerned and I hope you've "enjoyed the ride".

Before saying good bye and warmly thank you for staying with me once more I renew my invitation to keep sharing this Porcelain Jungle trilogy with your friends and colleagues the same way I do it with you, enjoy spreading the

knowledge and the gratitude that this whole training program is generating, I'm sure by keep doing so, you'll definitely benefit mentally and most likely economically as well.

Take care and pls. do get in touch if you feel like sharing your comments or need any explanation, I'll be right there ready to welcome your notes.

Best regards.

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