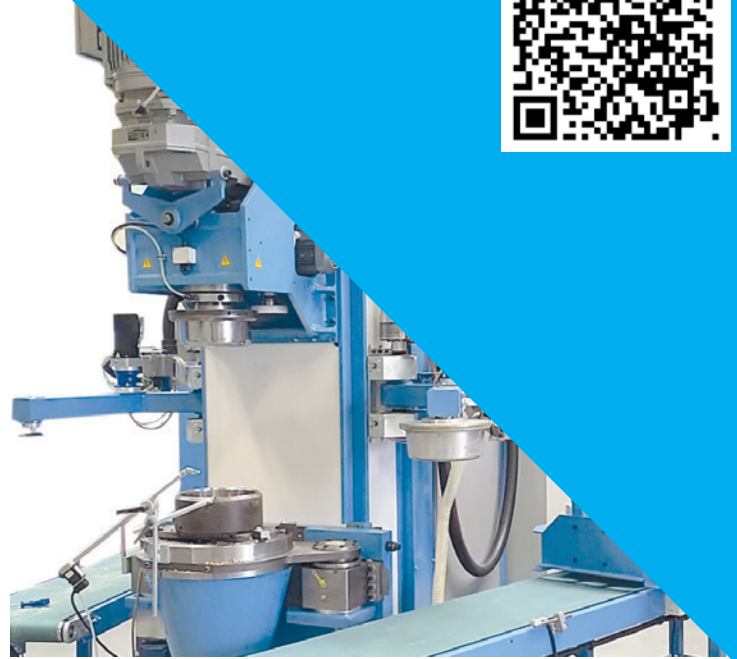




The Dutch company VSM Nieuwkoop is specialised in high-tech machines for pressing and spraying ceramic products. Thanks to more than 35 years of experience in developing innovative machines, based on modular designs, we are able to find a suitable solution of any specific production problem in the field of ceramic manufacturing. VSM is renowned for its outstanding after-sales practice.



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## XO CNC PRESSING MACHINES FOR:

Square products



Oval products



Products with handles



Round products



### CERAMICS

XO PRESS series for producing IRREGULAR, like Oval or Rectangular ( X ) and ROUND ( O ) ceramic products with steel moulds. With this XO-PRESS a very high product standard can be achieved: all products are identical, smooth and exactly the same have a constant wall thickness and are perfectly finished by robot and sponge wheel. The XO-PRESS machine includes: a pressing unit with upper mould rotational drive, a vacuum-head to pick up the pressed pot out of the under-mould, clay cut- and place arm unit and CNC-XO-Control unit. When working in X modus the finishing will be done with a robot and a sponging unit. The much quicker O modus finishing will be similar as on our Flex press; a T.C. cutter and a roller on the take out arm.

A very good and reliable clay-steel release system and combined Pressing system is applied. (PATEND) While the CNC-XO-Control allows for a quick change over and easy settings in production. The press is of robust build, well finished, and all linear ways are perfectly covered and sealed from clay or the mould oil. The machine has an outstanding well design and well-considered configuration of machine components so a very long life span is achieved. The modular XO-Press is easy to fit in all production lines.

### ADVANTAGES

- High quality products;
- Better and faster than RAM press technology;
- Available in 2 options XO and X both in High or Normal production execution;
- Cost effective machine with a very high quality-price ratio;
- High production capacity and completely finished;
- Flexible production due to Round and NON- round;
- With CNC-XO-Control less mechanical adjustments so faster set ups and change over's;
- Fits in any production line due to modular construction;
- Long life span and little maintenance required;
- PLC internet connection to VSM for monitoring;
- Clear list of warnings plus feedback on machine status to operator in case of problems or machine failure;
- Turn key delivery;
- Excellent after-sales service and training;
- Many favourable references from customers;
- Safety according European standards (CE);
- Adaptable to your mould fixings;
- Short change-over times.

# INFO

## BASIC MACHINE TYPES

**XO:** finishing the closing seam of the Non-Round products by one or two robots on a sponging wheel unit. The Round articles are finished at the take out arm.

**X:** only for IRREGULAR products.

Available: in High Production execution: take out arm, conveyor and two robots to finish.

Or: Normal execution: take out and finishing by one robot, product ready for transport to dyer.

Options: Clay Pre-cut and pick and place unit, Product transport systems, Robots, Sponging units, etc.

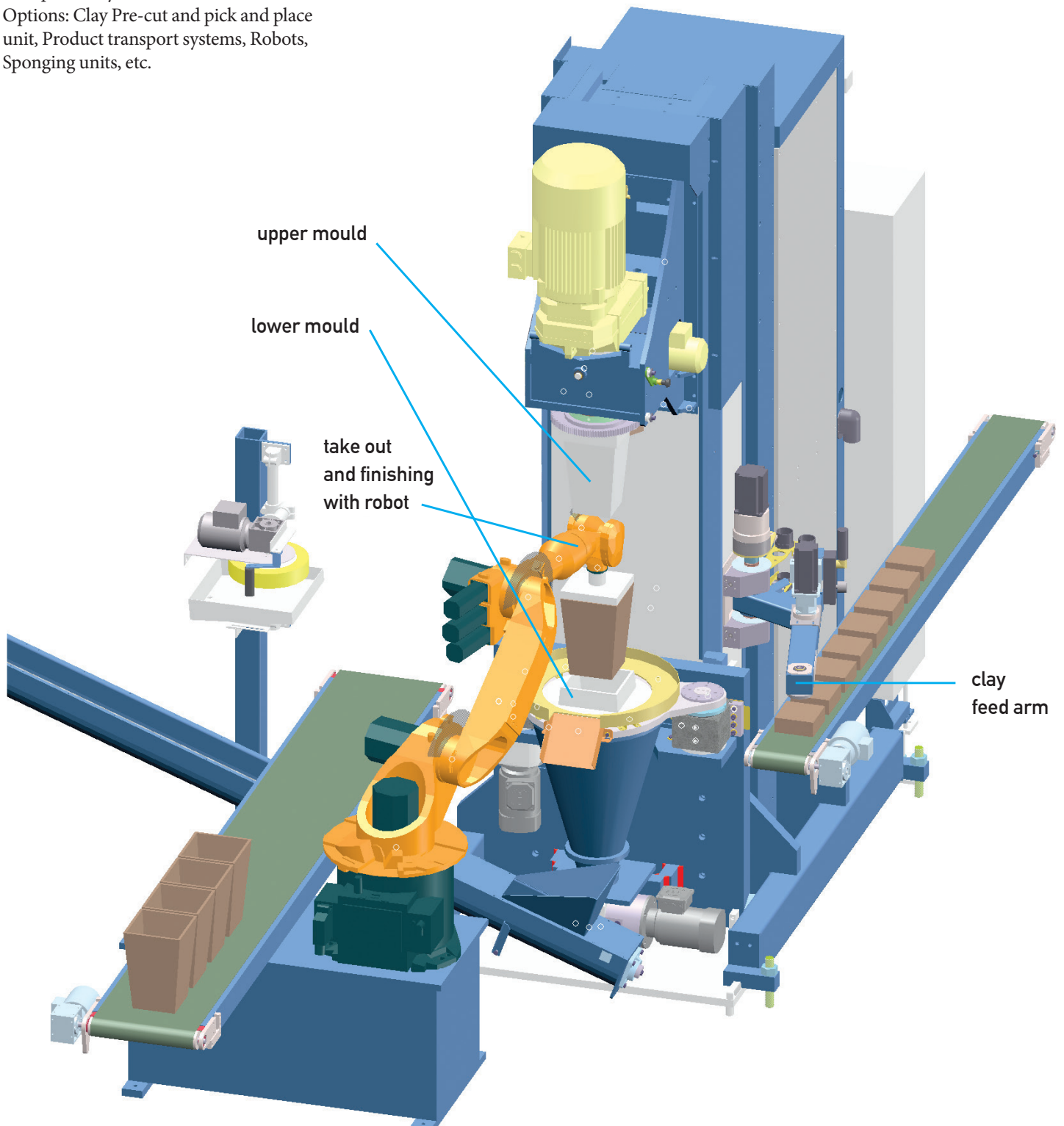
## CLAY FEED

The clay is fed to the press by means of a: A: bar feeder or B: an extruder.

A: one roll of from a clay conveyor belt is pushed into a cutting unit and cut into pieces. The pieces of clay are then transported on a conveyor belt to the press.

B: With an extruder, pieces of clay are cut directly from it and then transported via 3 conveyor belts to the press.

The clay is precisely cut at a vibrating wire to the programmed contour with the servo laying-in-arm. Making a very exact and clean cut. Then orientated and put into the lower mould. Every movement, size and speed is programmed into the CNC-XO-Control unit, making the clay feed fault-less, fast and minimising damage to the clay. Facilitating an improved product.



## PRESS UNIT

The press head has a servo-driven reciprocating ball spindle to make the press force. The stroke of the head with the upper mould is fast and can be adjusted to the exact height of the product. This results in a very short production cycle. For the O Press function a pump sprays mould oil on the clay and into the lower mould.

When in X Press function the spindle is blocked. The CNC-XO-Control selects automatically the used function.

Change over time, besides the mould, from X to O function is approximately 15 min.

The moulds are easy to place with the integrated lifting system.

## FINISHING

After the product has been pressed, it is lifted out of the lower mould by a vacuum-head on the take-out arm or by the robot. Then it's needed to finish the mould closing-seam on the product.

X press: the pressing excess clay is pre-cut with an integrated cutter on the mould, exactly to suit the closing seam. This excess clay is moved out by a rotary scraper. The finishing of X press products can both be direct with one robot, or via a conveyor with two robots on sponge wheels.

O Press finishing is done while rotating at the take out-arm, by a Tungsten Carbide knife and a Roller. The clay that is cut off by the knife is collected by vacuum for re-use. Both systems are very accurately and easily programmed in the CNC-XO-Control unit, and-or Robot

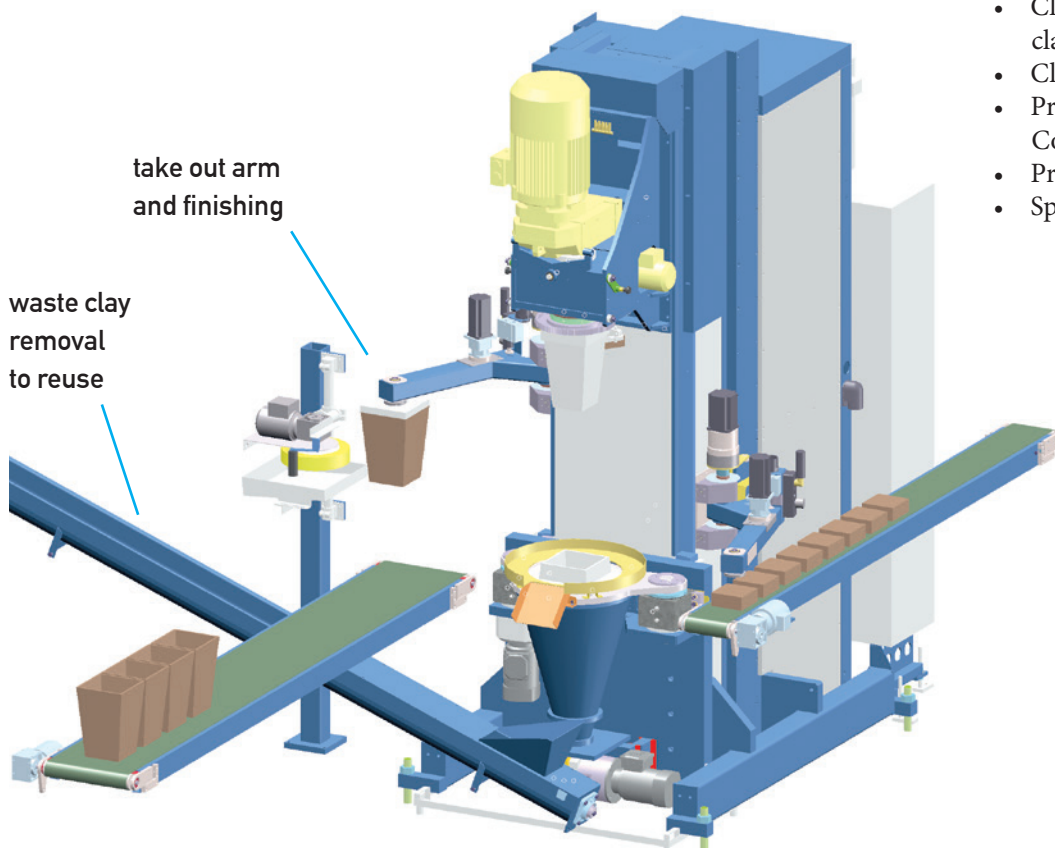
## MOULDS

The Moulds of the X press are machined from stainless steel and then case hardened. The design limitations are: a release slope on the product of minimal 2° and a minimum radius of 3 mm. The wall thickness needs to be bigger on the lower end than on the top of the product creating a side pressure during shaping. Product stay better if they are not flat on the bottom but have 3-4 feet of minimal 0,5 mm. Shapes can be: Square, Rectangular, Oval, or Irregular. The height can be up to 2 x the diameter. The moulds for the O press can be made from Cast or hardened steel. Height versus Diameter: max 1: 3

## OPTIONS

A large list of options is available for the XO-PRESS. For example:

- Clay feed with bar feeder;
- Robots;
- Steel moulds built by VSM;
- Clay cutters for pre-cutting the clay shape prior to X pressing;
- Clay feed with extruder and belts;
- Product removal on Boards, Conveyors, etc;
- Product Sponging units;
- Special wishes.



# SPECIFICATIONS XO CNC PRESS



MACHINE SIZE 400		X (IRRAGULAR)	O (ROUND)
Dimensions L x W x H		Automatic machine excl. clay feed and product removal: 2600 x 1400 x 3350mm. Electro control box at back of machine.	
total weight / transport size		6000 kg / 3800 x 1600 x high 2700	
Colour		blue (Ral 5012) and grey (Ral 7001)	
Power and rating		50 kW 120A	
Energy saving efficiency		braking energy from Pressing head, feed back into mains	
Safety		according to European standards (CE), doors with interlock	
CLAY-PRE-CUT ARM system*	Fine cut	pre- cut pieces of clay are fine cut with a vibrating wire, by program, orientated and placed into lower mould	
	diameter clay rolls	Max Ø 350	
PRESS UNIT material	Mould wall thickness /	Minimal 25 mm / hardened Stainless Steel	Minimal 20 mm / Cast Iron or hardened Steel
	Power pressing motor/ force *	340 Nm by Servomotor with reciprocating ball-spindle / Max 120KN (180KN)	
	Pressing Vibration *	Included, X-Y simultainious and separate in Z direction, adjustable.	
	Releasing Power *	100 Amp @ + and -150 v, fully adjustable up and down slope, with graphics screen: Pressing force-V-Amp, on a time scale curve	
	Max. stroke / speed *	1000mm / 800 mm/sec.	
	Max. weight of upper mould	250 kg	100 kg
	Under Mould take-up	Under mould ø 400 h8 mm fixed by 8 x M8 bolts.	
	Upper Mould take up fixing	With one central bolt M20F on flange ø 160 and orientating pins, with 3 power connections	With one central bolt M24 on SK 50 Taper
	Mould drive Power and RPM *	-	22 Kw at 320 RPM, 44Kw at 640 RPM
	Mould lifter	lifting device with pivot-arm included on side of press head	
TAKE-OUT-ARM	Rotation *	Positionable in 0,01° increments	50 – 600 Rpm
	Stroke / speed *	600mm / 1300 mm/sec	
	air pressure product drop off *	0 - 5 bar, 0 – 9 sec.	
	Vacuum *	0 - 0,9 bar, 0 – 9 sec.	
	cutting knife and roller *	0,0 – 9 sec. and 0,0 – 9 sec. Pause	
	Robot *	Optional: KUKA KR16 or KR30 fully integrated with our XO-Control unit	
PRODUCTS	Product (wet) max:	Square 260 x 260 mm, Rectangulair 380 x 40	Round 380mm, at the top max ø 400 mm
		Any Product has to fit within a surface of ø390 mm	
	min.	# 100 mm	Ø 160
	Max. product height	400 mm	400 mm
	Max. capacity (depending on # product)	250 pieces per hour	500 pieces per hour
		# 150 mm	(Ø 270)
CNC - XO - CONTROL	PLC with On board axis control, 100 programs, USB stick back-up, "feed override" 10-100%, LCD Touch colour screen 12" Robot-PLC connection: by Profi-bus or Ethernet bus PLC with internet connection to VSM, for monitoring and problem solving		
* Fully programmable			