

MARK 100

MARKING SYSTEM FOR ALLOY WHEELS



NUMTEC
ALPINE METAL TECH

MARK 100

MARKING SYSTEM FOR ALLOY WHEELS

The Mark100 system is a fully integrated machine for automatic pin stamping of alloy wheels. The system can apply any kind of alphanumeric characters as replacement of manual marking in the production process.

The machine is built as an inline version with closed housing which ensures easy implementation in existing installations. The wheels will be fed in and out on a roller conveyor to the machine, no additional loading equipment is necessary. The control cabinet is integrated into the machine frame. The machine can be completely assembled and cabled during assembly and test at NUMTEC and does not need to be dismantled for shipment which ensures a fast and trouble-free installation on site. The marking process is done with the proven NUMTEC MX01 pin stamping head. After feed in, lifting and turning, the wheel type will be recognized and the marking will be done from the bottom side through the roller conveyor. Due to the slim needle design, the marking can be applied close to the inside wheel rim or into small pockets in the center hub area. Based on the automatic wheel recognition system, the wheels can be fed in mixed order and all wheels will be marked correctly at its individual marking position. This guarantees a safe and reliable marking of 100% of wheel production.

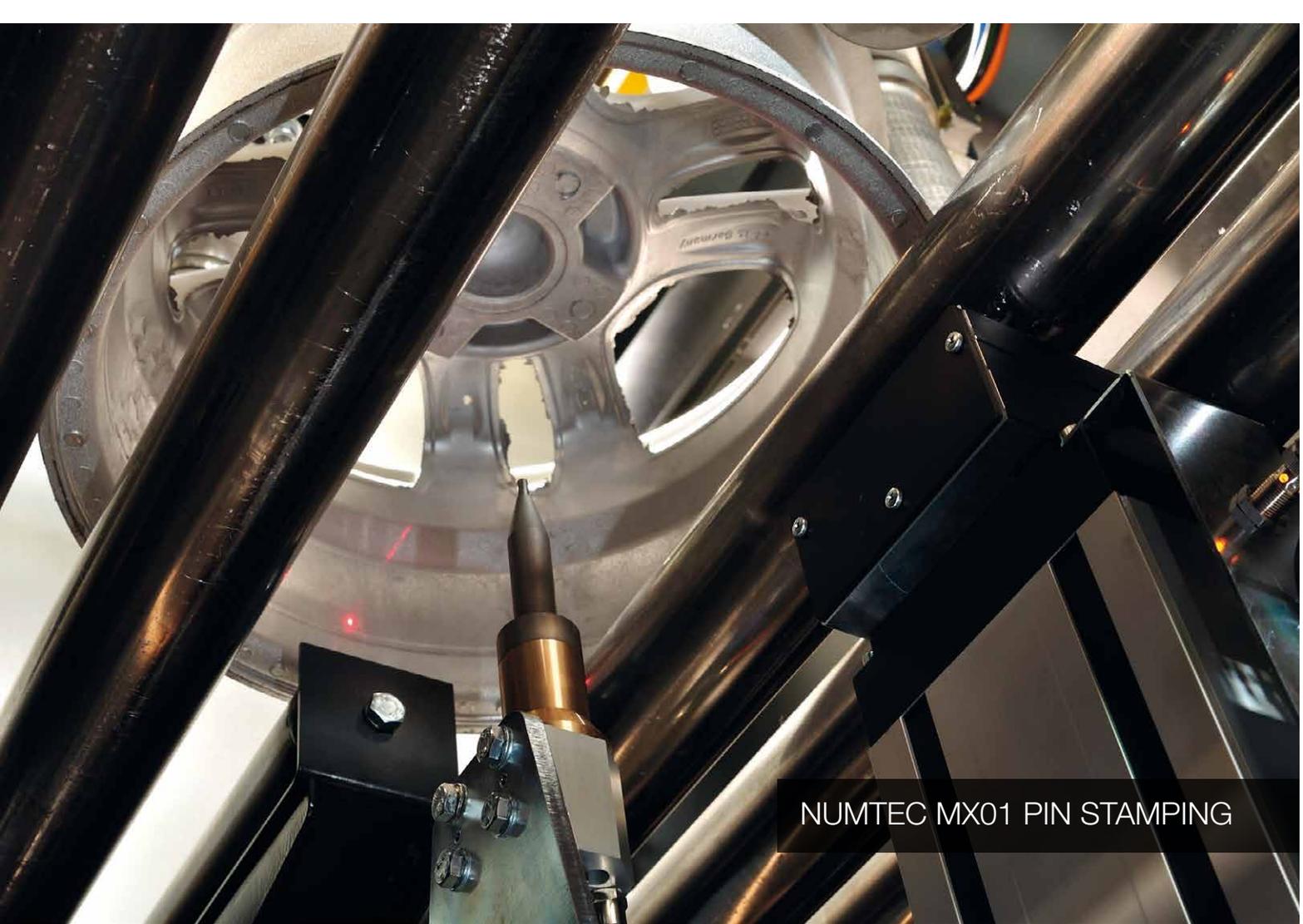
A marking cycle contains the following steps

- Wheels will be transported into the machine on the roller conveyor
- Pneumatically centering and lifting of the wheel
- Type recognition with the NUMTEC Barcode system (or optionally with camera system)
- Turning and positioning in the correct marking orientation
- Marking of the alloy wheel with the NUMTEC MX01 marking head
- The marked wheel will be released to the outbound conveyor

As interface to the conveyor system Profibus or Profinet can be used.

Your Advantage

- ▶ **SHORT CYCLE TIME**
Fully automatic marking of up to 220 wheels / hour with only machine
- ▶ **RELIABLE MARKING**
Nonvolatile marking with the NUMTEC MX01 pin stamping system, still readable after painting process
- ▶ **MAXIMUM AVAILABILITY**
Reliable system with built in self-monitoring equipment (i.e. needle control)
- ▶ **INTEGRATED SYSTEM**
Marking machine will be fully assembled and tested at NUMTEC prior to installation
- ▶ **AUTOMATIC WHEEL TYPE RECOGNITION**
Type recognition with NUMTEC Barcode system or optionally with camera system



NUMTEC MX01 PIN STAMPING



WHEEL GRIPPER SYSTEM

MARK 100

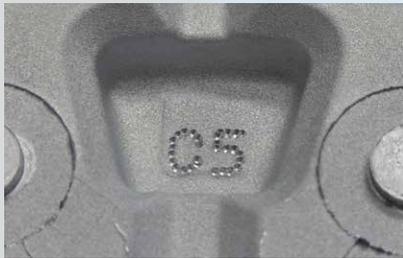


HMI INTERFACE

SERVICE ACCESS DOOR



CONTROL CABINET
integrated into machine frame



WHEEL MARKING

The requested marking will be applied inside of the wheel. The free selectable marking text (alphanumeric characters) can be individually applied at the inside of the spokes or at the pockets on the mounting face. The marking will be applied with the NUMTEC MX01 pneumatic pin stamping needle approx. 0.8mm deep into the material. This makes sure that the marking is permanently in the wheel and stays readable after painting process.



XYZ-AXIS SYSTEM

The positioning of the marking needle will be done with a 3-Axis XYZ system. The axis system will move the marking needle from below the roller table into the wheel and perform the correct writing movement.



PHD GRIPPER SYSTEM

The precise and reliable phd gripper unit will be used for the positioning and orientation of the wheel. The centering and lifting of the wheel will be done pneumatically. For fast maintenance, the complete gripper unit can be changed as an assembly.



NUMTEC MX01 PIN STAMPING SYSTEM

The MX01 marking head is a unique development of NUMTEC. The head is pneumatically operated. With the adjustable control pressure the stamping power and the stamping depth can be regulated. If requested, the stamping head can be equipped with a special long life hard metal needle.



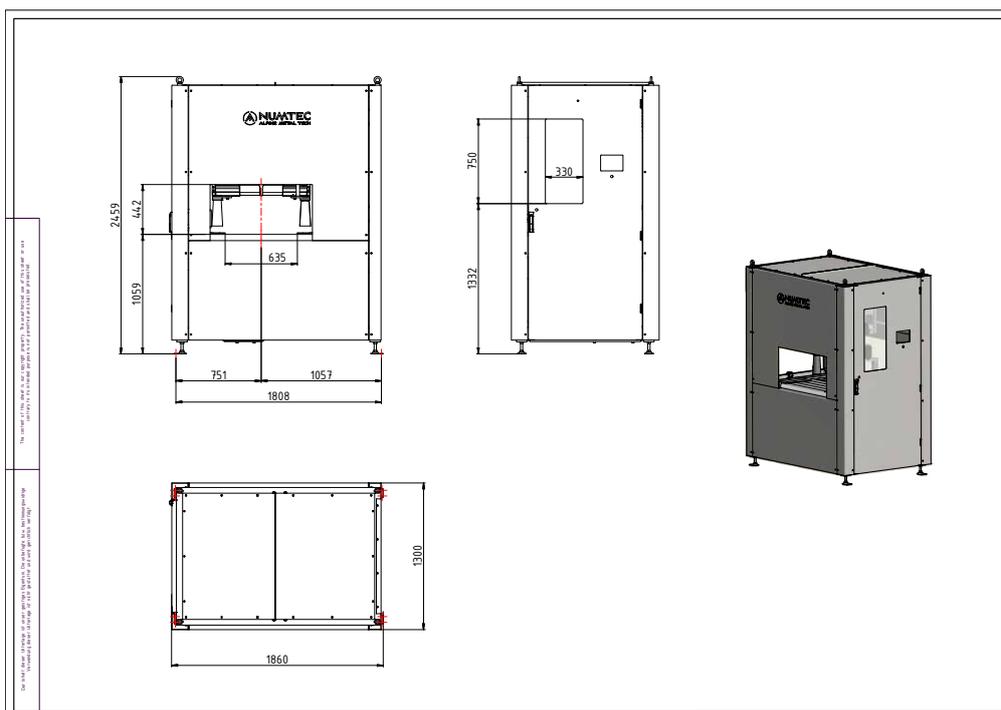
MARKING NEEDLE CONTROL

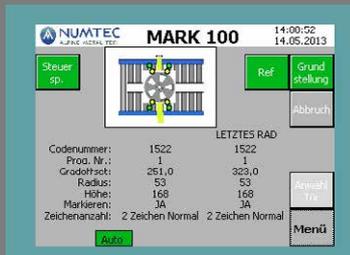
With the integrated marking needle control system, the complete mechanical and electrical system can be controlled for its correct function. Due to the type of installation, the system checks the servo control system, the mechanical axis system, the pneumatic system and the marking head for 100% correct function. The control cycle is selectable according actual plant or customer specifications.

MARK 100

TECHNICAL DATA

Marking system	NUMTEC MX01, needle marking system
Marking depth	0,1 mm - 1,0 mm, adjustable by stamping pressure
Possible marking characters	0 ... 9, A ... Z, Special characters according to customer specification
Font size	Adjustable, 6 - 10 mm height
Marking speed	approx. 0,9 seconds / character, depending on the selected font size
Wheel type identification	NUMTEC bar code or camera system (Option)
Control	Siemens S7 and MP177
Interface	Profibus or Ethernet
Capacity	220 wheels / hour (with 2 characters / wheel)
Wheel dimension	14 - 24 Inch diameter, max. 45 kg
Electrical supply	3 x 400 VAC, 3 kVA
Mechanical dimension	1300 x 1800 x 2500 mm (LxWxH)





INTUITIVE SOFTWARE

For operation and adjustment of the system, available in different language versions



WHEEL TYPE RECOGNITION

The wheel with the NUMTEC Barcode will be turned in front of the barcode scanner, the reading will be done during the movement of the wheel



SERVICE ACCESS DOOR

Easy access to the mechanical system through the front-side door



PHD GRIPPER UNIT

Reliable and fast wheel centering and turning with the use of phd-gripper units



NUMTEC MX01

High quality pin stamping head, pneumatically operated for high power stamping and an adjustable stamping depth



MARKING NEEDLE CONTROL

Automatic needle control for periodical function control of the complete marking unit (axis systems, pneumatic, marking head)

OPTION



CAMERA SYSTEM

Wheel type recognition with the NUCAM software package, for use in plants without the NUMTEC Barcode system



TEACHING DEVICE

A teaching device for easy and fast training of new wheels to the system. The marking position in the requested 3D-coordinates can be read directly from the teaching device



SPRUE POINT CONTROL

The system can control every wheel if the sprue is already drilled out. Wheels with sprue will automatically be rejected and any damage to CNC machine in the following process steps can be avoided

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