



STEEL

## MARKING MACHINES, CASTING



### Metal Powder Marking Machine

The Metal Powder Marking Machine is designed for marking of slabs and blooms. Marking is performed by blowing metal powder through a gas flame for melting it to the surface of the product. Metal Powder Marking Machines are distinguished especially by marking long-lasting, clear and bright characters, which can vary in size and number of lines depending on individual customer requirements

- Floor and bridge type
- Temperature range from 400 to 1100°C
- Alphanumeric and special characters, size from 40 to 150 mm
- Extendable with automatic reading system



### Hot Spray Marking

The Hot Spray Marking Machine is designed for marking of slabs and blooms. Marking is performed by blowing liquid metal which is melted in an electric arc between two wires to the surface of the product. Hot Spray Marking Machines are distinguished especially by marking of long-lasting characters, which can vary in size and number of lines depending on individual customer requirements.

- Floor and bridge type
- Temperature range from 20 to 900°C
- Alphanumeric and special characters, size from 60 to 150 mm
- Extendable with automatic reading system



### Dot Paint Marking Machine

The Dot Paint Marking Machine is designed for the marking of coils, slabs, blooms and billets. The system is based on paint marking with 7 or 9 nozzle marking sections. The marking equipment can be combined with all NUMTEC base machines and is available as stand-alone machine or in combination with MX Punch Marker.

- Robot, Floor & Bridge Version
- Extremely short marking cycles, as marking is done in one movement
- Temperature range from -5 to 1,100 °C
- Alphanumeric and special characters within 7 x 5 or 9 x 7 dot matrix
- Character size character size 30 – 150mm
- Marking media: Paint, water & solvent based
- Extendable with automatic reading system



### Single Nozzle Paint Marking Machine

The Single Nozzle Paint Marking Machine is designed for the marking of coils, tubes and sections as well as for slabs, blooms and billets. The system is based on paint marking with single-nozzle marking heads.

- Robot, Floor & Bridge Version
- Uniform marking image due to the continuous fluent writing movement
- Temperature range from -5 to 1,100 °C
- Alphanumerical and special characters, size from 30 to 150 mm
- Marking media: Paint, water & solvent based
- Extendable with automatic reading system

## MARKING MACHINES, CASTING



### Revolving Head Marking Machine

The Revolving Head Stamping Machine is designed for the permanent marking of slabs, blooms and billets. Revolving Head Stamping Machines are distinguished especially by the stamping of unmistakable and full characters, which can vary in size and number of lines depending on individual customer requirements.

- Inline, marking during casting, no separate marking position
- Very low running costs and no consumables costs, except set of stamps (insignificant)
- Floor and bridge type possible
- Temperature range from 600 to 1100°C
- Up to 24 different alphanumeric characters, size from 10 to 25 mm
- Extendable with automatic reading system



### Mobile Stamping Unit

The hand held stamping unit is designed as backup system for the Revolving Head Marking Machine. For stamping the unit has to be pressed against the product, the stamping head is pushed in and releases the activation for the punch. The punch has to be activated manually by pressing the trigger on the stamping unit.

- Light, portable, wireless stamping unit with cartridge loading device
- Applicable for hot or cold slabs, blooms and billets
- Total mobility and complete independence from electrical/media supplies
- Connectable extension tool allows the operator to mark hot material at a distance
- Identical marking Image as from the AMT RH stamping machine
- Automatic readable with AMT OCR Reading system
- Number of digits: up to 10 characters with one punch
- Character size 10 - 15mm

## READING AND TRACKING SYSTEMS, CASTING



### Vision System

The reading and tracking system is an automatic reading system for many kinds of marked, labelled and printed products. The system allows material tracking from casting to rolling process.

- OCR Reading of alphanumeric characters, Code Reading
- Contrast Markings & Stamped Marking
- Event Logging (Images of product & marking, machine status) stored on database server
- Typical reading performance more than 98%



## TAGGING & LABELING



### Tag Marking Machine

The Tag Marking Machine is designed for the marking of slabs, blooms and billets. Marking is performed by nailing the tag direct on the product. Auto Tagging System can be designed as robot or bridge type according to local situation and customer requirements.

- Process time reduction because of direct application at the high temperature up to 1200°C
- Wide variety of tag sizes
- Eliminated all kinds of identity losses and avoid the risk of mismatch during product identification
- On-Site Printing Thermal Transfer Printer; any format and code can be printed (barcode, QR code, Data Matrix...)
- Suitable Weather Resistance and for even poor surfaces
- Extendable with automatic reading system



### Label Marking Machine

The Label Marking Machine is designed for the marking of coils, slabs, blooms and billets. Marking is performed by pasting the label direct on the product. Auto Labelling System can be designed as robot or bridge type according to local situation and customer requirements.

- Process time reduction because of direct application at the high temperature up to 800°C
- Wide variety of label sizes
- Eliminated all kinds of identity losses and avoid the risk of mismatch during product identification
- On-Site Printing Thermal Transfer Printer; any format and code can be printed (barcode, QR code, Data Matrix, etc.)
- Suitable Weather Resistance
- Extendable with automatic reading system



### Mobile Label Applicator

The printed label will be taken up with the applicator. Hereby the label is sucked by the vacuum plate. For marking the applicator will be pressed against the product and the vacuum button will be released. The press on time is approx. 5 seconds.

- Light, portable, only air supply necessary
- Direct Application on Hot Products up to 800°C
- On-Site Printing Thermal Transfer Printer
- Any format and code can be printed (barcode, QR Code, Data Matrix, etc.)
- Suitable Weather Resistance
- Automatic readable with AMT OCR Reading system, and any other reader devices
- Very easy to handle

## DEBURRER



### Slab/Bloom/Billet Deburrer

The in-line rotary hammer type deburring machine is designed for removing burrs from continuous casting products (slabs, blooms & billets) caused by torch cutting. The deburring process is executed during transportation on roller table without stopping the product. The in-line removal of burrs is carried out by a series of hammers which hanging loosely on axles positioned around the deburrer roll. Due to the roll speed and the mass of the hammers they hit the burrs several times at high speed before the burr is removed from the product and guided via chutes into a burr removal system.

- Product speed up to 40m/min
- Temperature range up to 1000°C
- Significant quality improvement of rolled products (no roll-in of burrs)

## SHROUD MANIPULATOR



### Shroud Manipulator

The Shroud Manipulator enables the user to get a straight connection between the ladle slide gate and tundish. It is designed for moving the ladle shrouds from the storage, cleaning or heating position to the connection point at ladle gate and versa. During casting process the Shroud Manipulator retains the shroud with a constant press-on force at the connection point of the ladle.

- Manual, semi-automatic or automatic types available
- Press on force (adjustable): up to 10 kN
- Operation from a safety distance - improve operator safety

## POWDER FEEDER



### Powder Feeder

The Mould Powder Feeder is designed for the automatic distribution of casting powder into the mould. This ensures a constant uniform mould powder distribution during the casting process. The Mould Powder Feeder is applicable for all types of powder and granules.

- For slab casters only
- Powder container with 100l volume
- 0.5 to 3 l/min capacity per feeding tube

## MARKING MACHINES, ROLLING



### Dot Paint Marking Machine (7 or 9 nozzles)

The dot paint classic marking technology offers a solid marking image which is suited for marking hot and cold steel products. The technology is based on electro-magnetically activated spray guns comprising a nozzles for paint, atomizing air, and cleaning air, which are built around a needle to control the paint flow.

- Temperature range from -10 to 1,100 °C
- Alphanumerical characters, special characters and machine readable codes, size from 30 to 150 mm in 7x9 or 9x11 dot matrix
- Marking media: Paint
- Marking speed up to 2.5 m/s
- Extendable with automatic reading system



### CombiJet & Hot CombiJet Paint Marking Machine High Resolution (16 nozzles)

The CombiJet marking technology fulfils the increasing demand for a high resolution quality marking at high speed. The electro-magnetically activated marking section is fully automatic and requires no manual adjustment. By adding more marking sections together a full flexible matrix is generated allowing demanding marking images to be marked.

- Temperature range from -10 to 1100 °C
- Alphanumerical characters, classification symbols, logos and machine readable codes, size from 18 to 800 mm
- Marking media: Paint
- Marking speed max. 2.5 m/s
- High resolution quality marking for branding
- Extendable with automatic reading system



### Punch Marking Machine

The punch marking machine is used where a permanent marking is needed. Two technologies are offered, i.e. electro-magnetically and pneumatic activated punches for different applications. Punch marking may be performed on stationary products or during product conveyance.

- Temperature range from -10 to 1,100 °C
- Alphanumerical characters, classification symbols, logos and machine readable codes, size from 6 to 20 mm
- Penetration depth adjustable from 0.2 to 0.4 mm in up to 600 HB
- Marking tool: Punch Die or Needle
- Minimum cycle time: marking of 3 lines with 30 character in approx. 5,5 seconds
- Extendable with automatic reading system



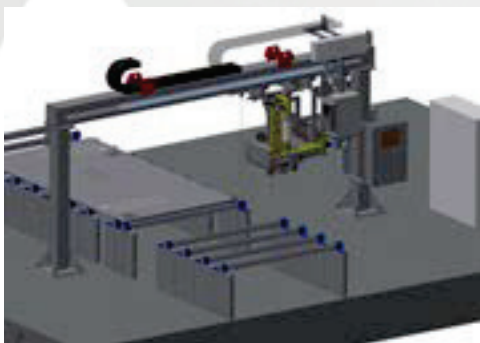
## MARKING MACHINES, ROLLING



### Plate Edge Marking Machine

Edge marking or fixed labeling as we call it allows steel plates to be stacked without losing the possibility for identifying the individual plates in the stack. The marking is black ink characters and a barcode applied by a continuous ink-jet on a ribbon of white paint.

- Temperature range from -10 to 300°C
- Alphanumeric characters, Chinese and machine readable codes, size from 2 to 10 mm
- Marking media: Paint and ink
- Marking with standard ink-jet on white paint for background layer
- Equipment for white background layer integrated into machine
- Extendable with automatic reading system



### Combined Automated Marking Machine

By combining our main technologies and building up our machines with standardized modules we are able to deliver high quality and proven customized solutions fitting into any production line.

- Combination of paint, (CJ-CombiJet, classic), punch (PU-Matrix Needle) and edge (ED- Edge) marking technology
- Customized design for any production line
- Bridge or cantilever steel structures
- Transversal or longitudinal marking also for moveable products
- Extendable with automatic reading system



### High resolution quality marking for branding

With the CombiJet Technology, Alpine Metal Tech responds to the strong branding tendencies in the steel market. The CombiJet marking technology is distinguished by ease of use, high speed and high resolution marking. Our technology is able to mark any individual marking layout (texts, classification symbols, logos, brand names and machine readable codes).

- Turns an anonymous product into an advertising media
- Gives the product added value
- The nameless product becomes a proprietary product
- Advertising media for the customers of the steel producers
- Copy protect your steel product

## TORCH CUTTING MACHINES - FLAT PRODUCTS



### SVE - Slab Vertical lowering Electric type

The machine is combining two mechanical movements driven by a strong electromechanical drive which supports the torch beam and the below water plate with the synchronization skid. By lowering, the skid is going down until the slab surface stops the movement. At the same time the torch beam is going down uprightly by means of a vertical raceway keeping the torches vertical regardless of the thickness of the slab. With this mechanical system, there is no need for a torch height equipment system with all components like motors, end switches etc.



### SSC - Slab Swivel type Counterweight Machine

- The machine is lowered by a pneumatic cylinder providing a single and simple movement by pushing down the synchronization skid against the slab. The skid returns back in top position thanks to the rear protection plate used as counterweight
- In case of a power failure or emergency, the skid is lifted in a safe position by manual or automatic purging of the cylinder and the machine is released from the strand



### Vertical Torch Cutting Machine for continuous slab casting plants

- Casters utilizing a vertical design allows for continuous casting of high-alloy grades; this casting technology requests high performing Torch Cutting Machines able to accomplish their task in an unusually rough environment with perfect accuracy and reliability.
- Gega Vertical TCM (machine type: SVM – Slab Vertical Machine) are composed of a horizontal machine carriage moving vertically between two columns and synchronizing the movement with the strand by pneumatically actuated clamping arms. Two independent torch carriages travel on rails which are mounted on the machine carriage.
- The machine is protected against the radiant heat of the hot strand by generously dimensioned water plates at the bottom and front side of the machine.



## TORCH CUTTING MACHINES - FLAT PRODUCTS



### Secondary Torch Cutting Machines for slab subdividing

For subdividing mother slabs in shorter daughter slabs of preselected length Gega developed the Secondary TCM facility including two movable portals (machine type: PMB – Portal Movable Beam) - built-up transversal to the roller table. For the cutting operation the portals are equipped with two torch carriages for transversal cutting. Both machines are designed for cross cuts with only 1 torch or with 2 torches simultaneously. With input information provided by a measuring roll the slabs, transported by a roller table, are stopped in a certain window and the two portal cutters are positioned along the transport direction in order to achieve the preselected length of the daughter slabs.

## TORCH CUTTING MACHINES - LONG PRODUCTS



### BLM - Billet / Bloom Linear-cutting Machine

- A gear with a frequency controlled synchronous -motor drives the linear cutting torch
- The torch can be equipped with motorized height- adjustment or manually adjusted at the torch holder
- The exact position of the strand edge is determined by PLC via the travelled distance during clamping



### BPL - Billet Pendulum-cutting Machine-Light

- An electro cylinder moves the pendulum cutting torches
- For an adjustment of the nozzle distance to the material (depending on the sizes), the torches has to be adjusted manually in the torch holder
- The torch will be taken to the strand edge during clamping via a mechanical device which is mounted to one of the clamping arms

## SCARFING



### 2-Sided and strip (Band) Scarfing Machine

TWO (2) SIDED SCARFING MACHINE are the best option for customers requiring a semi-automatic equipment that has an exceptional balance between high capacity and low maintenance

- Equipped with Gega Scarfing Burners producing a finish required by stringent rolling mills.
- Significant production flexibility and media savings resulting from the ability to control individually each burner segment and having separate top and side scarfing carriages.
- Gega offers Strip (band) and special scarfing machines such as fixed strip, selective strip, corner, billet or bloom scarfing machines.



### Scarfing Manipulator

Scarfing Manipulator has the flexibility to scarf whole slab surfaces, strip scarf, spot scarf, and/or edge scarf (dependent on ancillary equipment installed.)

- Most flexible and efficient
- From an air-conditioned and dust protected cabin the scarfing nozzle is controlled via joy-stick by the operator enabling a precise scarfing work.
- Lower costs for auxiliary equipment as fume extraction systems, water treatment plants or scrap management systems



### Hand Scarfing

Gega's Safety Hand Scarfing Torch type SHF including scarfing nozzle is used for a complete or partial scarfing or removing surface layers of crack effected zones of raw ingots, blooms, slabs and mouldings consisting of unalloyed or low- alloyed steels.

- Gases are mixed in the scarfing nozzle, a safety design feature minimizes the risk of flashback to further protect the operator

## PREHEATING



### Preheating Station

Automatic preheating equipment designed for drying and heating ladle and tundish

- Uniform flame distribution allows more effective drying and heating
- Automatic temperature regulation
- Increase of economic efficiency by use of recuperative technologies

## PORTABLE CUTTING EQUIPMENT



### Cutting Tractor - CORTI

- Manually controlled cutting torch
- Designed for emergency cuts in continuous casting plants and cutting up scrap material
- Equipment meets high safety standards implemented in a modern and simple design
- Simple handling, robust and resistant design and accurate cutting results
- Customized solutions are always possible
- Available with remote control

## OFFLINE TORCH CUTTING MACHINES



### Slitting and Subdividing machines

- Related to off-line operation many applications request a high level of accuracy and flexibility for material sizing and subdividing.
- Gega slitting machines are able to perform high quality length cuts depending on different requests related to the final product; sizing of tapered slabs and length subdividing but also cross cuts are typical tasks for this machine category; high quality of laser and sensor equipment are enabling excellent cutting results
- Further applications with similar design and equipment are subdividing all kind of scrap material with different forms and thicknesses.