

TORCH CUTTING

Continuous Casting





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GEGA torch cutting machines convince with high cutting quality results as well as a solid and reliable design.

The product portfolio of GEGA proposes different types of machines adapted to the needs of the steel mills: SSC type and SVE type for billet and blooms. The SSC type is used for simple casted product with

nearly only one thickness. The SVE type is particularly suitable for wide different thickness ranges. Furthermore, GEGA offers the BPL and BLM type for slab torch cutting. The BPL type has pendulum cutting torches and is used for smaller sections. The BLM type has linear cutting torches is suitable for wide blooms or special applications.

YOUR ADVANTAGES

» Torches and nozzles

Torches and nozzles are the core of the process, thus GEGA attaches great importance to the quality of these patented products in machining precision, cooling characteristics, incomparable cutting results and certified 100% quality control. Benefits are faster cutting (up to 20%), lower consumption (up to 30%), optimal cooling, a longer life span and minimum cutting kerf, therefore less material loss is generated.

» Precise media regulation equipment

In order to reach high quality performances it is very important to have an accurate pressure regulation of the cutting and heating medias. In this way GEGA has a portfolio of regulation equipment adapted to your needs and to a rational configuration of your equipment. From the simple pressure regulation to the remote controlled ones, GEGA offers the ideal solution.

» Mechanical equipment

Machine assembly consists of a sturdy steel structure and high quality mechanical equipment. The protection against the radiant heat is ensured by a combination of water plates and heat resistant passive plates combined with the best protective coating.

» Electrical control

GEGA torch cutting machines comprise high-end versatile and operator friendly control equipment according to EN 13849-1 with industrial touch display and control with PLC from Siemens, Allen Bradley or Mitsubishi.

» Warranty of performances / commissioning

GEGA sizes new torch cutting machines according to customer's production needs providing a successful commissioning with fitting figures.

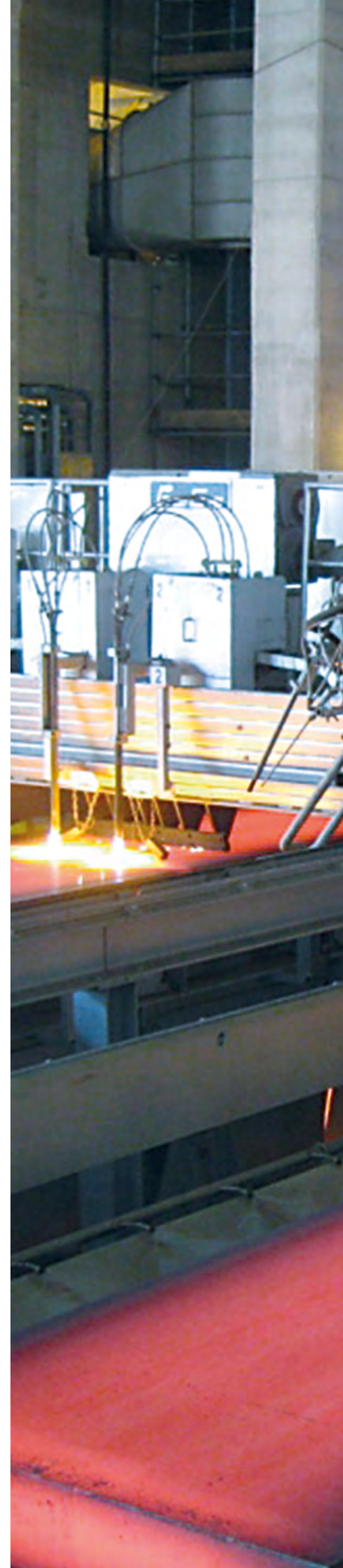
SVE - SLAB VERTICAL LOWERING TYPE

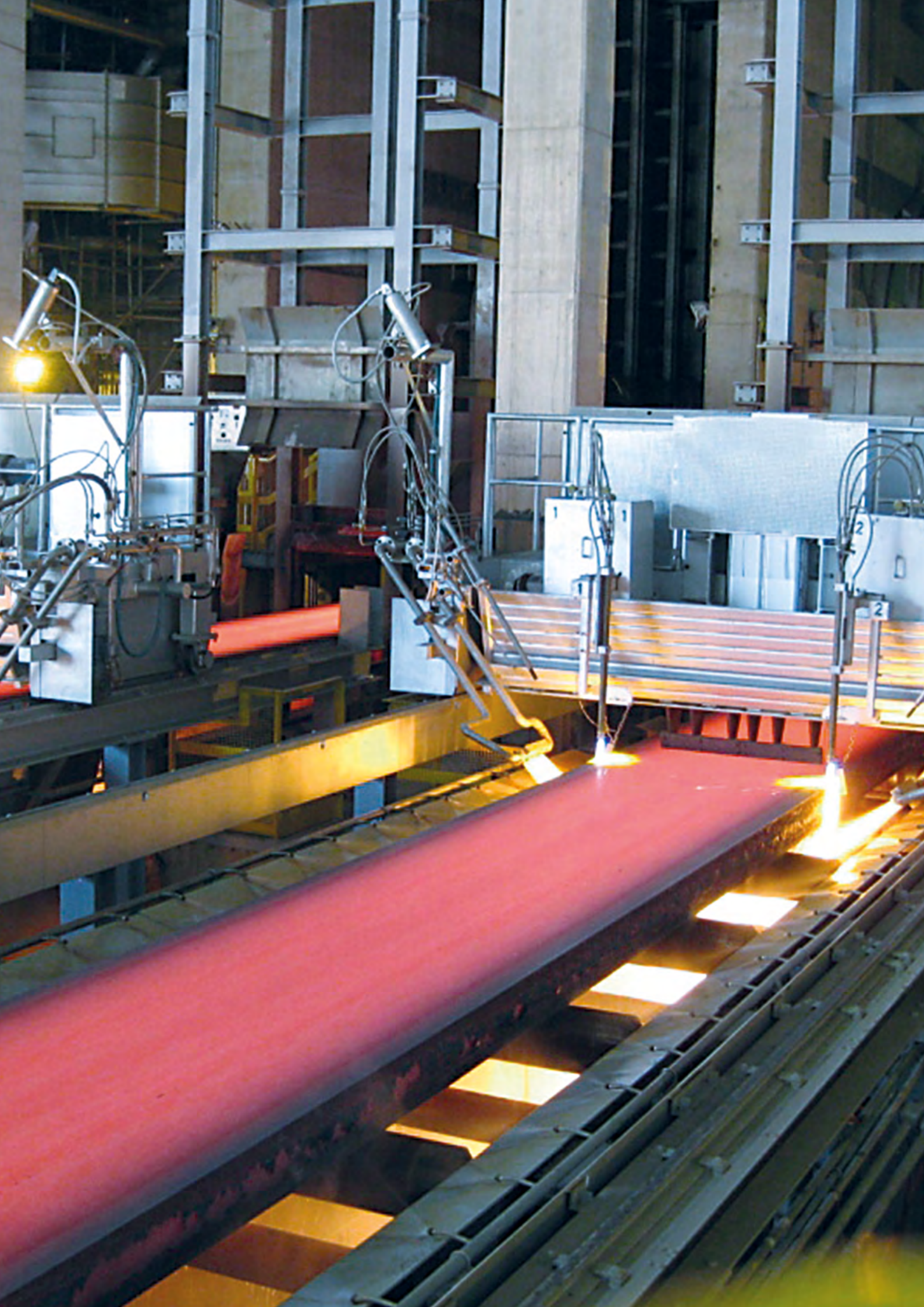
The SVE torch cutting machine is designed with a high efficiency water cooling equipment allowing the standard operation of the machine by slab temperature up to 1100°C.

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 synchronisation skid. By lowering the skid is going down up until the slab surface stops the movement, at the same time the torch beam is going down vertically with the help of a vertical raceway keeping the torches vertically disregarding the thickness of the slab. With this mechanical system, it is no need for a torch height equipment system with all components like motors, end switches etc.

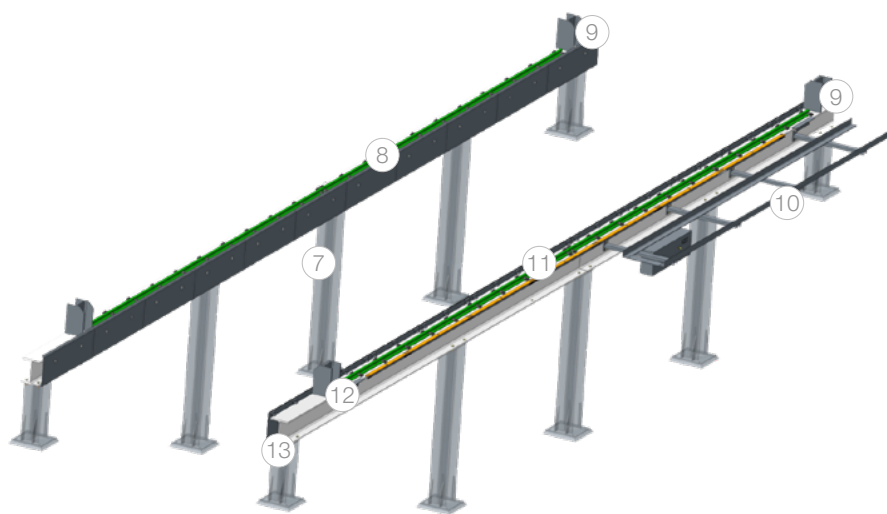
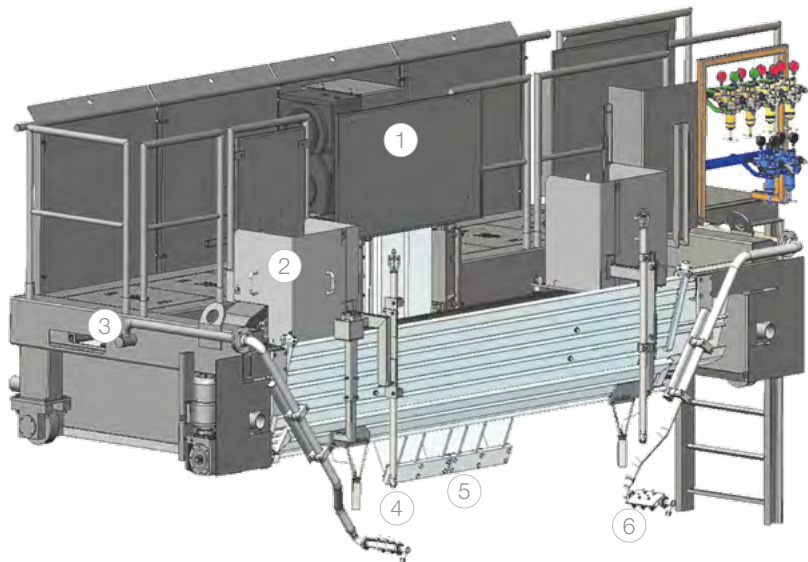
Your advantages

- » Wide range of product gauges
- » Nozzle distance preset once for any product gauge
- » No electrical height adjustment device is needed thereby allowing trouble-free operation of the machine
- » High improved cutting quality based on the preset nozzle distance

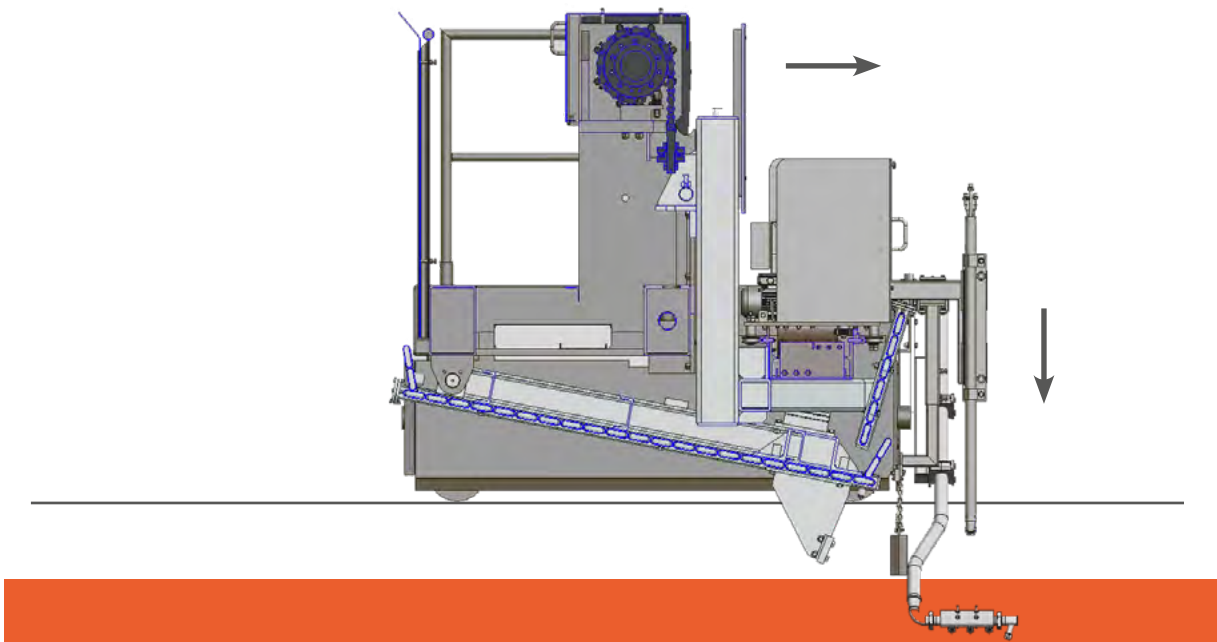
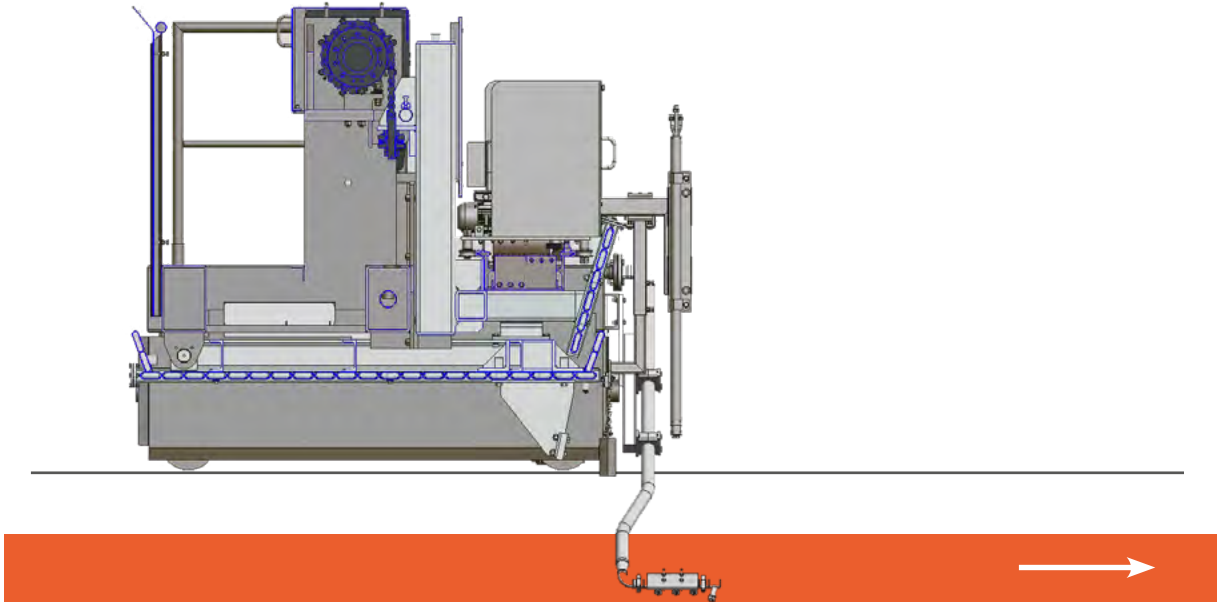




TECHNICAL DATA



- ① Lifting drive
- ② Torch carriage
- ③ Maintenance platform
- ④ Cutting torches
- ⑤ Clamping skid
- ⑥ Granulation
- ⑦ Vertical support beams
- ⑧ Rails
- ⑨ End buffer
- ⑩ Tray for cable drag chain
- ⑪ Drive rack
- ⑫ Limit switch device
- ⑬ Horizontal support beams



SSC - SLAB SWIVEL COUNTERWEIGHT

The SSC torch cutting machine is designed with a high efficiency water cooling equipment allowing the standard operation of the machine by SLAB temperature up to 1100°C.

The machine is lowered by a pneumatic cylinder providing a single and simple movement by pushing down the synchronisation skid against the slab. In case of emergency or the machine is not in operation, the skid is back in top position thanks to the rear protection plate used as counterweight.

Your advantages

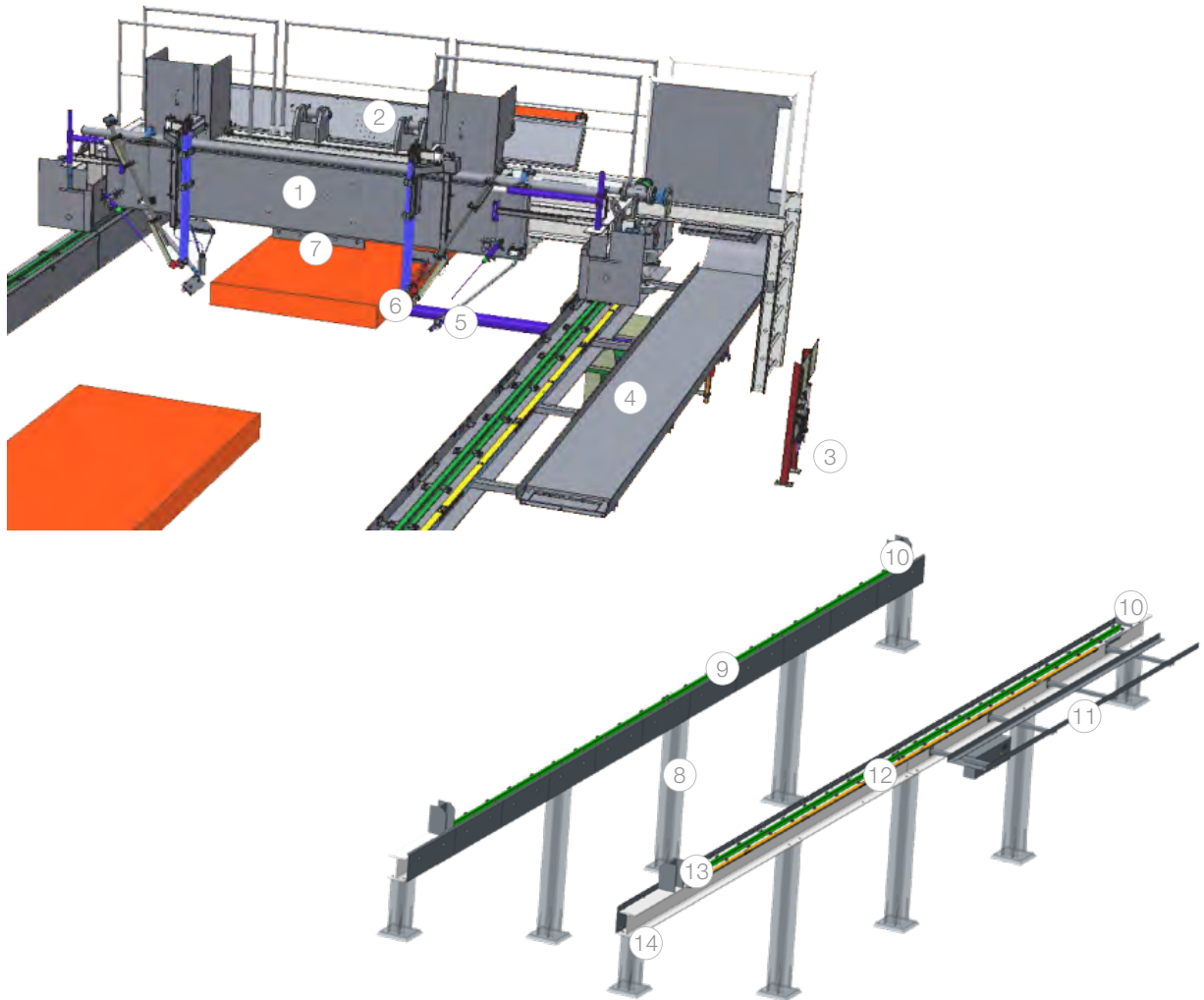
- » Simple mechanical design
- » Synchronisation movement by pneumatic clamping combined with automatic emergency release
- » Optional high adjustment allows to use this machine with different thickness ranges



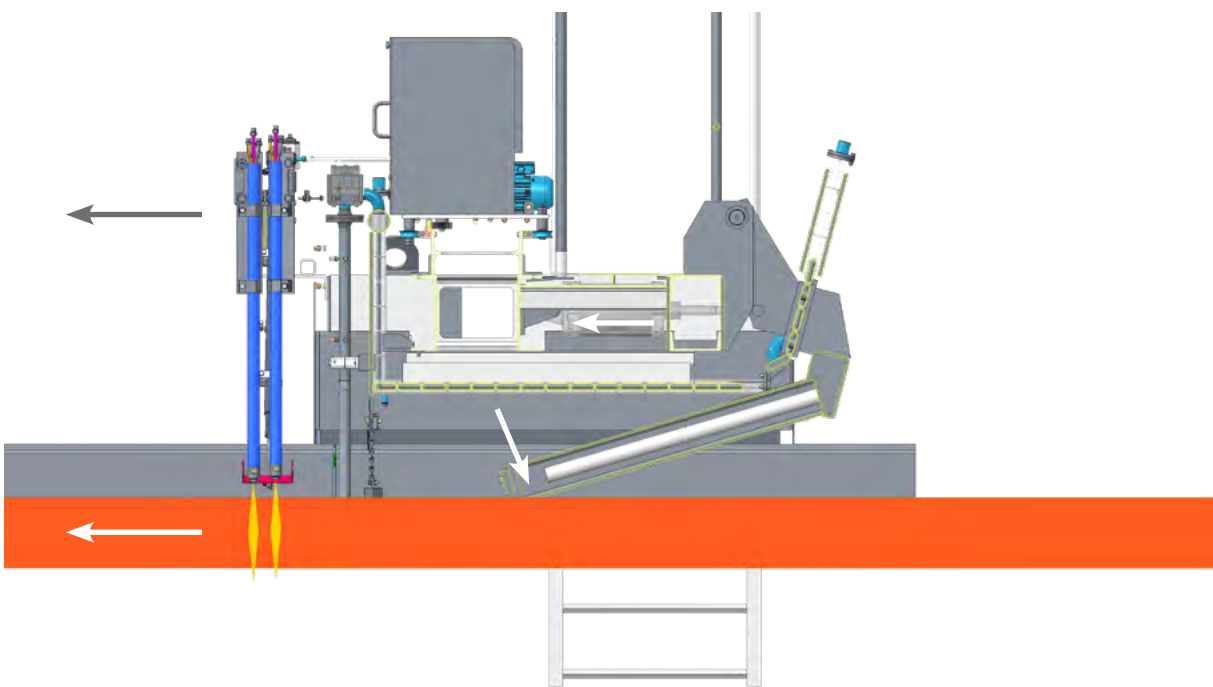
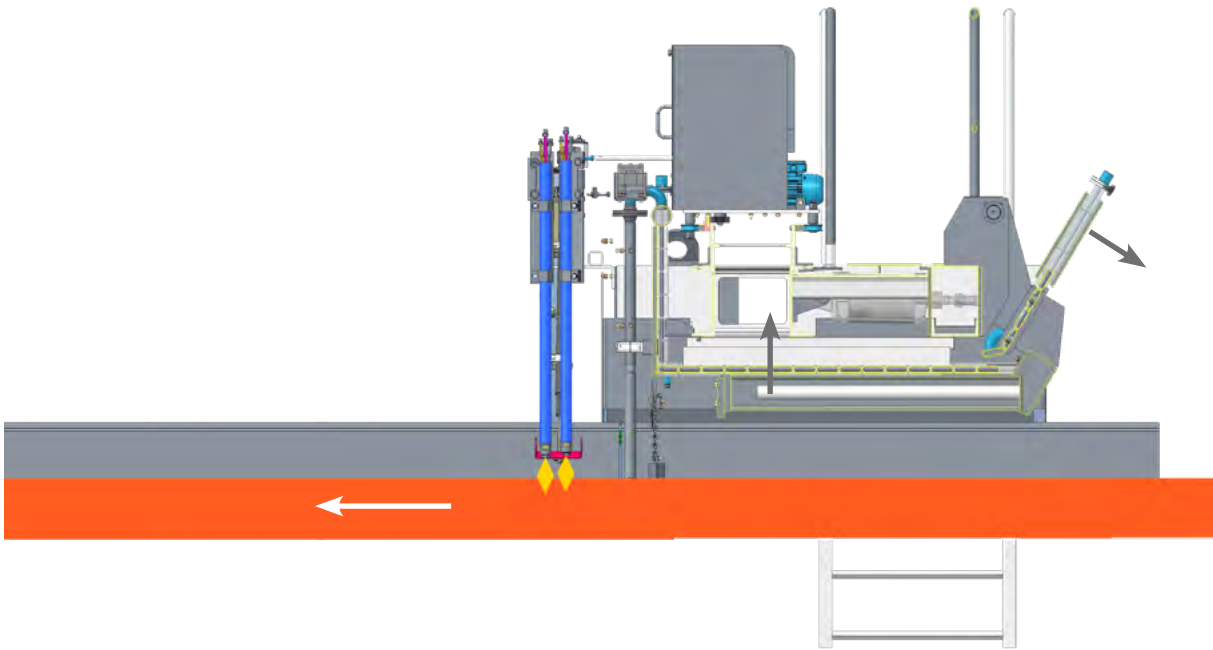
 **GEGA**
ALPINE METAL TECH



TECHNICAL DATA



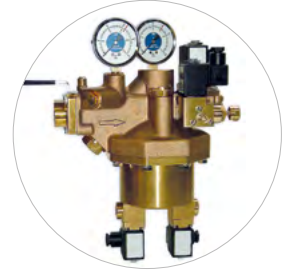
- ① Heat protection plate front
- ② Heat protection plate rear
- ③ Control panel measuring roll
- ④ Cable drag chain
- ⑤ Measuring roll
- ⑥ Cutting torches
- ⑦ Clamping skid
- ⑧ Vertical support beams
- ⑨ Rails
- ⑩ End buffer
- ⑪ Tray for cable drag chain
- ⑫ Drive rack
- ⑬ Limit switch device
- ⑭ Horizontal support beams



OPTIONAL EQUIPMENT - SVE/SSC

Heating flame reduction

All cutting machines can be equipped with consumption-reducing accessories. This system allows a lower consumption of oxygen and gas for the entire cutting process after the cut has been initiated at first and the cutting oxygen is switched on.



Iron powder injection

To cut stainless steel it is essential to use a reliable system to avoid high material loss. This easy to maintain powder equipment consists of pressure regulator, solenoid valve for dry compressed air (or nitrogen), powder hopper with pinch valve, injector and a powder-supply line to the cutting nozzle. The powder-supply line is fixed to the torch holder on the side of the heavy-duty cutting torch.



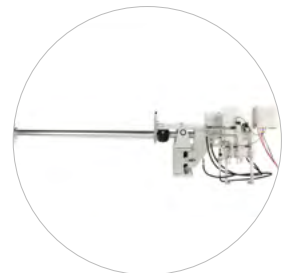
Electrical ignition and flame detection

These additional accessories are used for safety operation in compliance with the DIN EN 14753. The ignition torches are mounted stationary at the home position of the machine on the main frame. The UV sensor checks the presence of the ultra violet light produced by the flame.



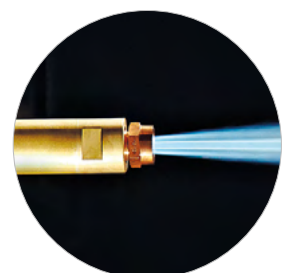
Length measuring roll

Robust mechanical measuring device allows optimised piece length calculation in the continuous casting process for every product range, with water-cooled rod to the tip. With an accuracy of 0.21% at 12m piece length and these cooling characteristics, its just unbeatable. Also available for twin and triplet casting.



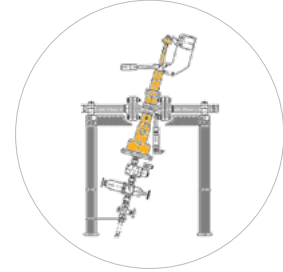
Torch height adjustment

The optimized nozzle distance - set once - between the torches and the material to be cut will be adjusted automatically with repeatable accuracy. The result is a much higher availability and lifetime of the torches and nozzles. Manual adjustment of the torches in the danger area is no longer necessary.



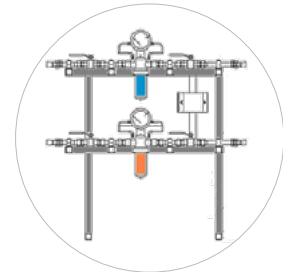
Emergency shut-off valves

Reliable safety features at your plant are unavoidable. The shut-off valves will be mounted in the main supply lines for gas and oxygen in front of the T.O.P. The oxygen and gas supply towards the cutting machine is interrupted by closing the emergency shut-off valves. The media lines towards the machine are unstrained by means of the release valves which are positioned on the emergency shut-off valves unit according to the conditions on site.

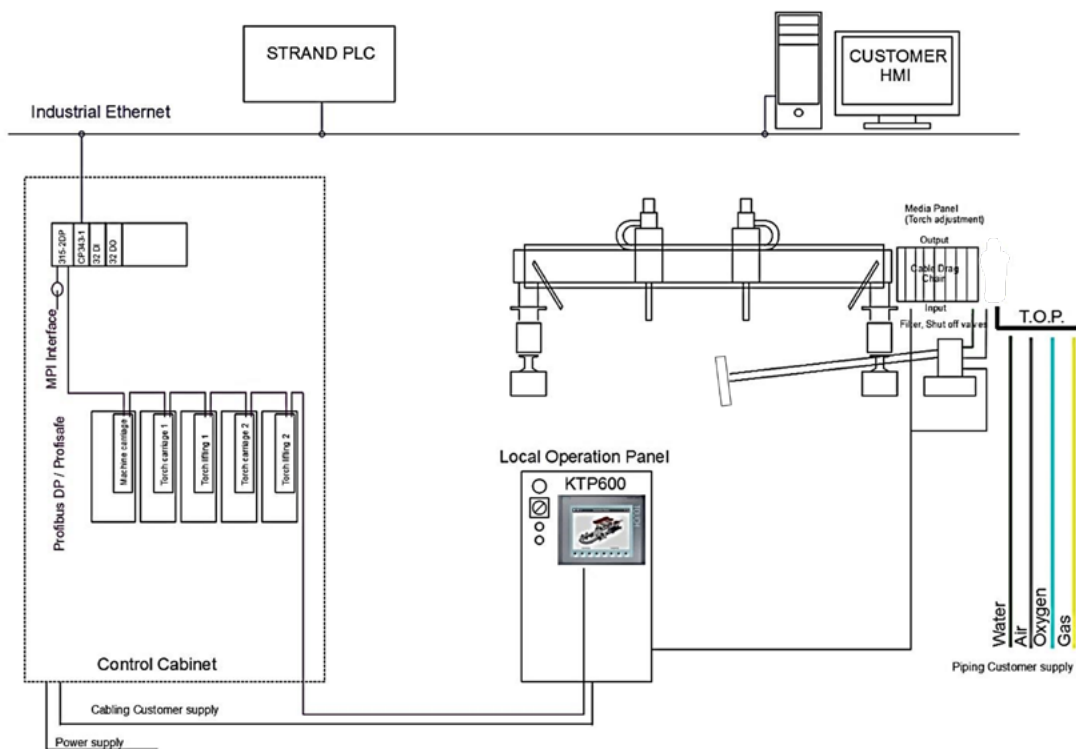


Filter station

Keeping the control equipment clean extends the life-span. The filter station has to be located close to the entrance of the main cable drag chain. The basic version is provided with one filter for gas and one filter for oxygen. Each of them is equipped with a difference pressure gauge with warning/ alarming function connected to the PLC.



HARDWARE CONFIGURATION



BPL - BILLET/BLOOM PENDULUM CUTTING

GEGA's BPL machines consist mainly of a water-cooled machine body protected against the radiant heat of the strand, a maintenance lid, a clamping system, the inner components, two guide wheels, travelling wheels and a cable tray.

All components such as bearings, drives, valves, cylinders etc. are inside the water-cooled housing and have an optimal protection against heat. Driving of the machine over the rear axle is carried out by a frequency controlled AC motor with spur gear and brake. An electrical actuator moves the pendulum cutting torches. The clamping system for synchronous movement with the strand consists of two water-cooled clamping arms and a pneumatic cylinder. The clamping arms are mounted to the front side of the machine housing. The torch will be taken to the strand edge during clamping via a mechanical device which is mounted to one of the clamping arms. By this the torches will always be in correct position in relation to the strand edge. The granulation is carried out by means of granulation nozzles which are arranged on one side of the machine.

Your advantages

- » Simple machine with pendulum drive
- » High efficiency water cooling protects all internal components
- » Improved cutting quality
- » High operational availability
- » Customizeable for special requirements





BLM - BILLET/BLOOM LINEAR CUTTING

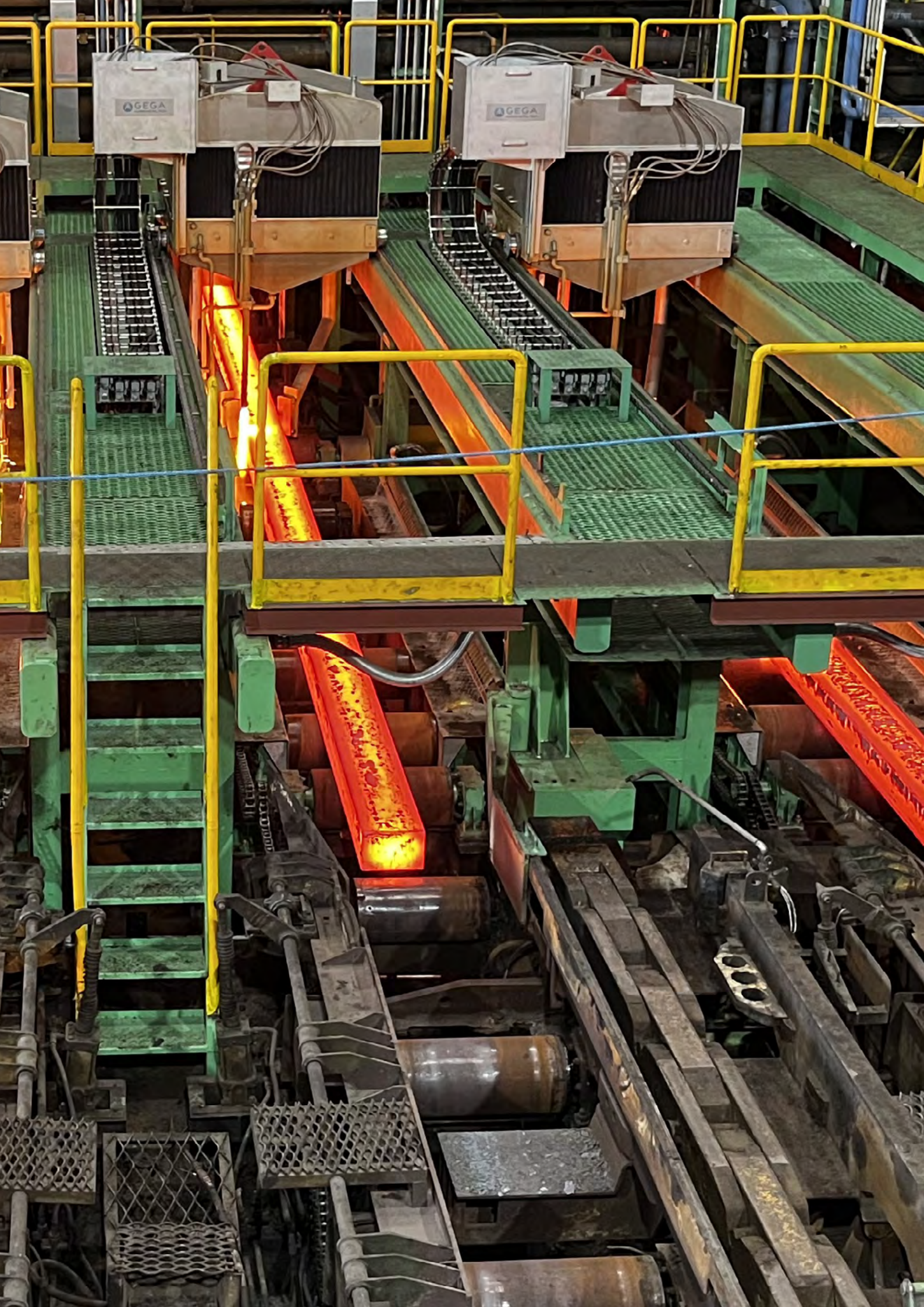
GEGA's BLM torch cutting machines consist mainly of a water-cooled machine main frame with an exchangeable and water-cooled bottom plate against the radiant heat of the strand, a maintenance lid, a clamping system, the inner components, two guide wheels, travelling wheels and a cable tray.

All components such as bearings, drives, valves, cylinders etc. are inside the water-cooled housing and have an optimal protection against the radiant heat. Driving of the machine over the rear axle is carried out by a frequency controlled AC motor with a one-step spur gear and brake. A frequency controlled AC motor drives each linear torch.

Your advantages

- » Linear movement for an optimized cutting of wide blooms
- » Optional automatic height adjustment
- » Optional second motorized torch carrier
- » High efficiency water cooling protect all the internal components
- » High operational availability
- » Customizeable for special requirements





OPTIONAL EQUIPMENT - BPL/BLM

Length measuring roller beam

Robust mechanical measuring device allows optimised piece length calculation in the continuous casting process for every product range, with water-cooled rod to the tip. With an accuracy of 0.21% at 12m piece length and these cooling characteristics, its just unbeatable. Also available for twin and triplet casting.



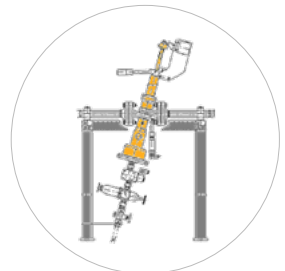
Iron powder injection

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Emergency shut-off valves

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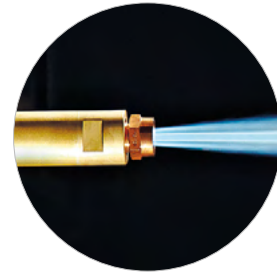
Electrical ignition and flame detection

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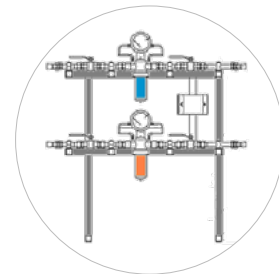
Torch height adjustment

The optimized nozzle distance - set once - between the torches and the material to be cut will be adjusted automatically with repeatable accuracy. The result is a much higher availability and lifetime of the torches and nozzles. Manual adjustment of the torches in the danger area is no longer necessary. (Only for BLM type)

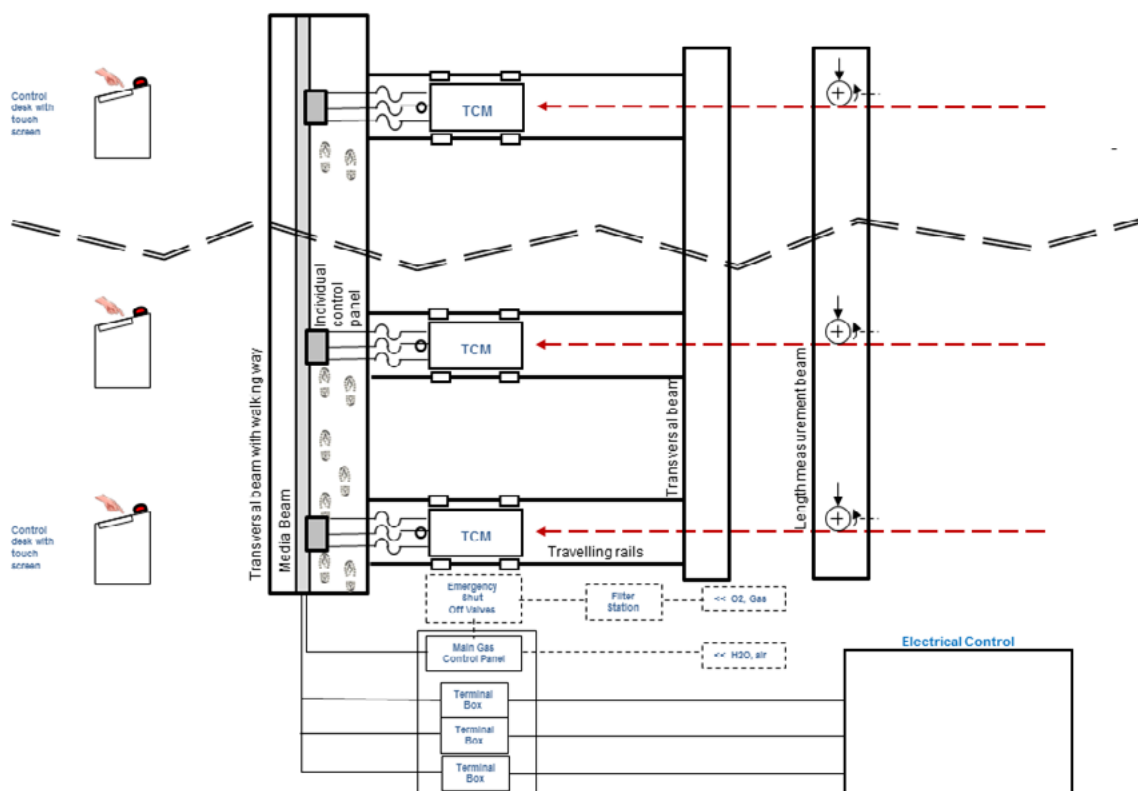


Filter station

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HARDWARE CONFIGURATION



OFFLINE CONDITIONING EQUIPMENT

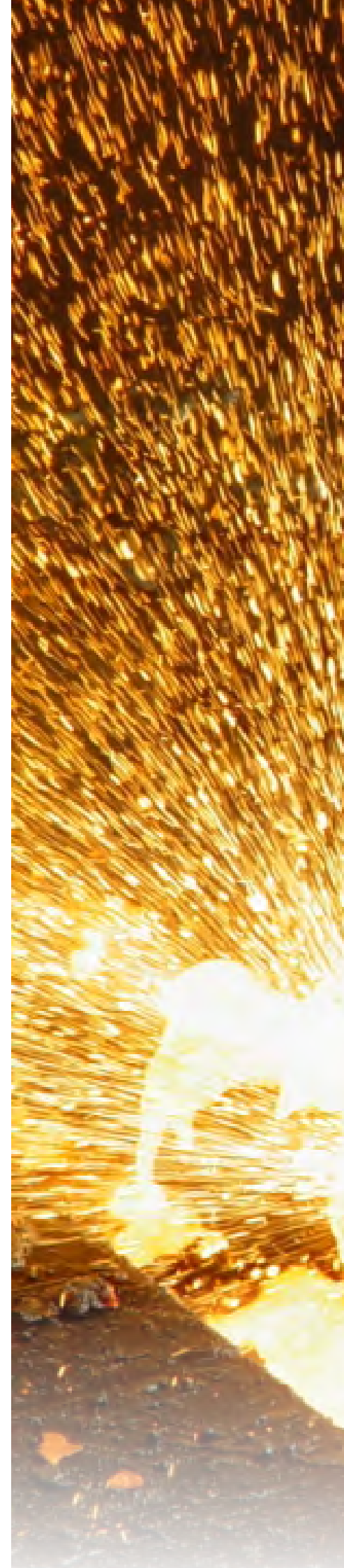
GEGA offers within their product range versatile equipment for any type of offline conditioning. Our product range covers manual equipment such as hand cutting torches and hand scarfers as well as mobile equipment with remote control.

For more complex applications, we individually design slitting and cross cutting machines in various sizes and capacity, suitable for a vast range of product dimensions and properties. The machines can be complemented with many features such as laser measurement, x,y,z-torch movement and control, highest degree of automation and others.

Our portfolio is accomplished by scarfing machines adopted to the required capacity. Basis of these machines is the proven GEGA gas technique, installed in scarfing manipulators, band scarfer or 2-side scarfer.

Your advantages

- » Robust design with highest quality standard
- » Proven GEGA gas technique with economical consumption
- » Customized solution adopted to flexibility in production





MANUAL EQUIPMENT

Hand cutting equipment

The hand cutting equipment impresses with its light construction and improved ergonomics. A wide range of torches with angular or straight head, and various length up to 4,5m are available, complemented by special designed hoses, regulators and safety equipment. Considering safe handling and design, the gas mixing takes place at the nozzle. Thanks for long experience in nozzle design, high cutting quality almost without burr residues are achieved.



MOBILE EQUIPMENT

Cutting tractor - CORTI

The Corti Evolution is a portable cutting solution specifically for flexible and non-stationary cutting applications. It can be used for multiple tasks and is suitable for all challenges - e.g. inline emergency cuts in the continuous casting process, offline cuts such as longitudinal, cross cutting or scrap cutting. Specifically designed to combine high performance cutting with user-friendly handling, the Corti Evolution is the best choice for any flexible cutting operation. In addition to a variety of improvements, the Corti Evolution also offers the option of being controlled via a WiFi remote control.



Scrap cutting - cantilever or portal machines

Scrap cutting machines can be individually designed for cutting and subdividing all kind of scrap material with different forms and thickness. In addition, our semi-automatic & portable system CORTI is suitable for efficient and resourceful scrap handling. The machine type can be chosen depending on the capacity requirement. Main features for all machines are simple and rigid design, easy to integrate in existing plants, versatile usable and manual & semi-automatic operation.



SECONDARY AND OFFLINE CUTTING

Slitting and cross cutting

Once mainly slabs (but also twins, billets or blooms) have been cut to the required dimensions, they are prepared in the finishing area for further processing.

For cross-cutting into short pieces or slitting into narrow pieces in the material handling process, GEGA offers a wide range of so-called secondary cutting machines with individual design adopted to specific requirements of our customers.



Offline cutting machines

Offline machines are based on modular configuration, in a stationary or movable design: The cantilever machines with a stationary or retractable cantilever arm for subdividing all kind of cold and hot material in a transversal or longitudinal manner. The portal machines with a gangway are used for slitting or cross-cutting of material in all desired dimensions.



Plate cutting machines

Supplementary to our secondary and offline cutting machines, addressing all types and varieties of subdividing, our program is complemented by plate cutting machines for cold and hot plates from 30 to 600mm. All kind of plates, measured and recorded by laser can be cut into user-defined geometries, linked via customer overall control system.



LIFE CYCLE BUSINESS

Spare parts

GEGA commits to service also after supply and provides safe and high quality components. All components guarantee a high equipment availability and economical operation costs. The broad spare parts portfolio encompasses:



Special hoses



Flash back arrestor



Nozzles



Burner



Flow controller



GL regulator





LIFE CYCLE BUSINESS

Revamping

In the course of a torch cutting machine's life cycle, GEGA offers the option to revamp existing machines to the latest state-of-the-art technology. During the ongoing operation of these machines, GEGA conducts on-site inspections to prepare a detailed revamping quote. If the customer has a spare machine available, it can be delivered to GEGA to potentially reduce revamping costs. GEGA not only upgrades its own torch cutting machines but also supports customers with revamping of machines from other brands to the highest standards of oxygen cutting technology.



Before revamping



After revamping

Service & Commissioning

GEGA's service includes not only the commissioning of new machines but also the maintenance ensuring high reliability of machines as part of the GEGA's promise of continuous satisfactory performance in daily operations.





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