

# TORCH CUTTING

Continuous casting







# TORCH CUTTING

## Continuous Casting

**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.



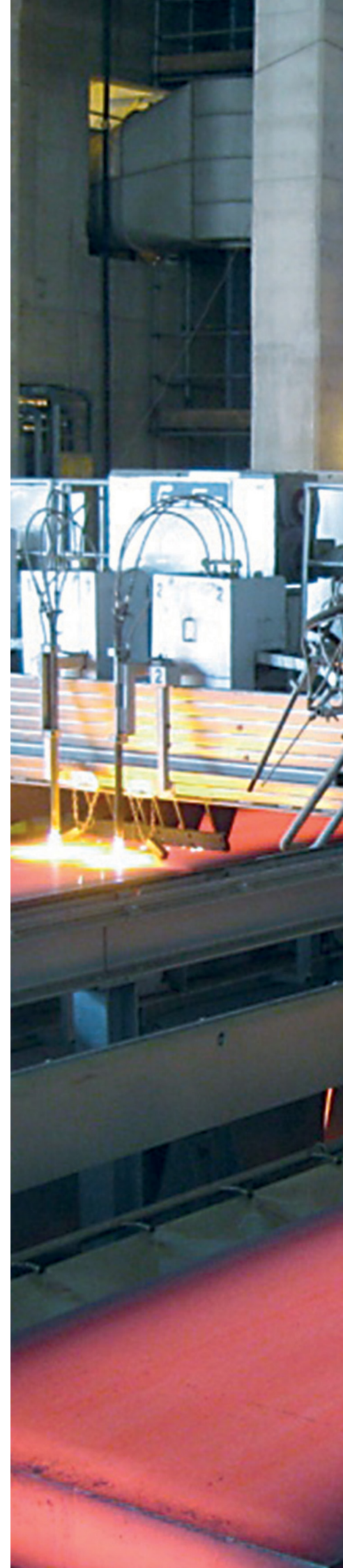
# SVE - SLAB VERTICAL LOWERING TYPE

**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.**

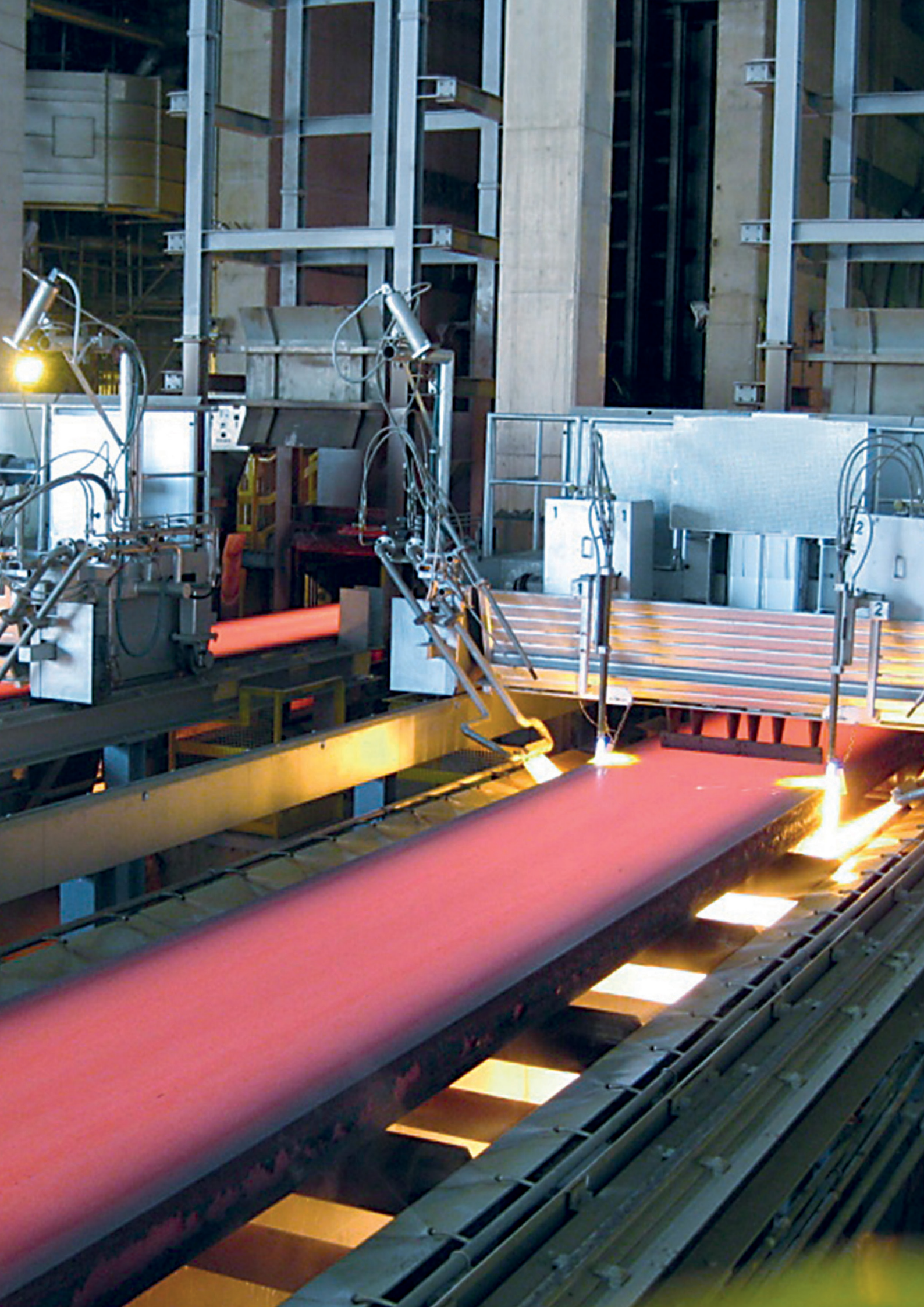
The machine is combining two mechanical movements driven by a strong electromechanical drive, which supports the torch beam and the below water plate with the synchronisation skid. By lowering the skid is going down up until the slab surface stops the movement, at the same time the torch beam is going 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

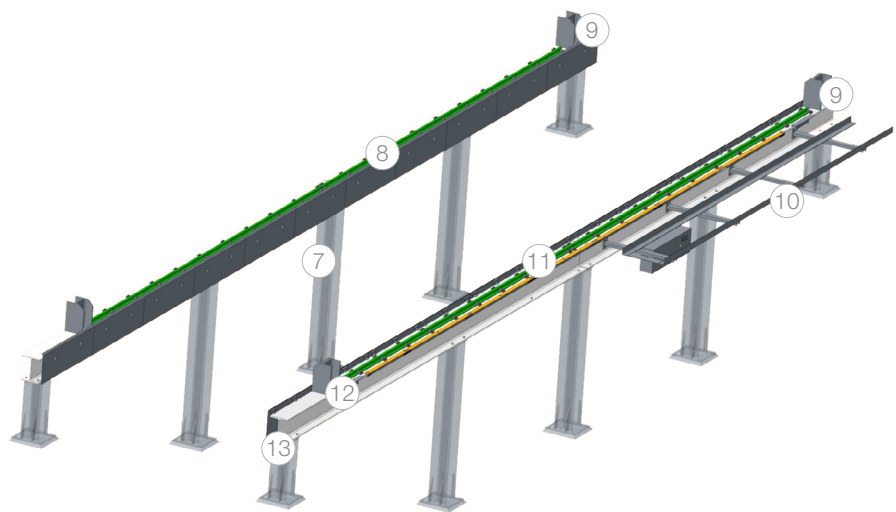
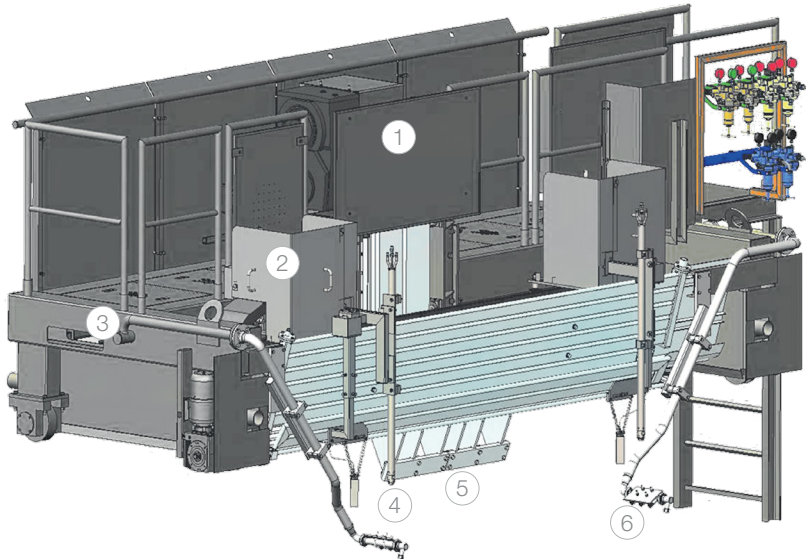






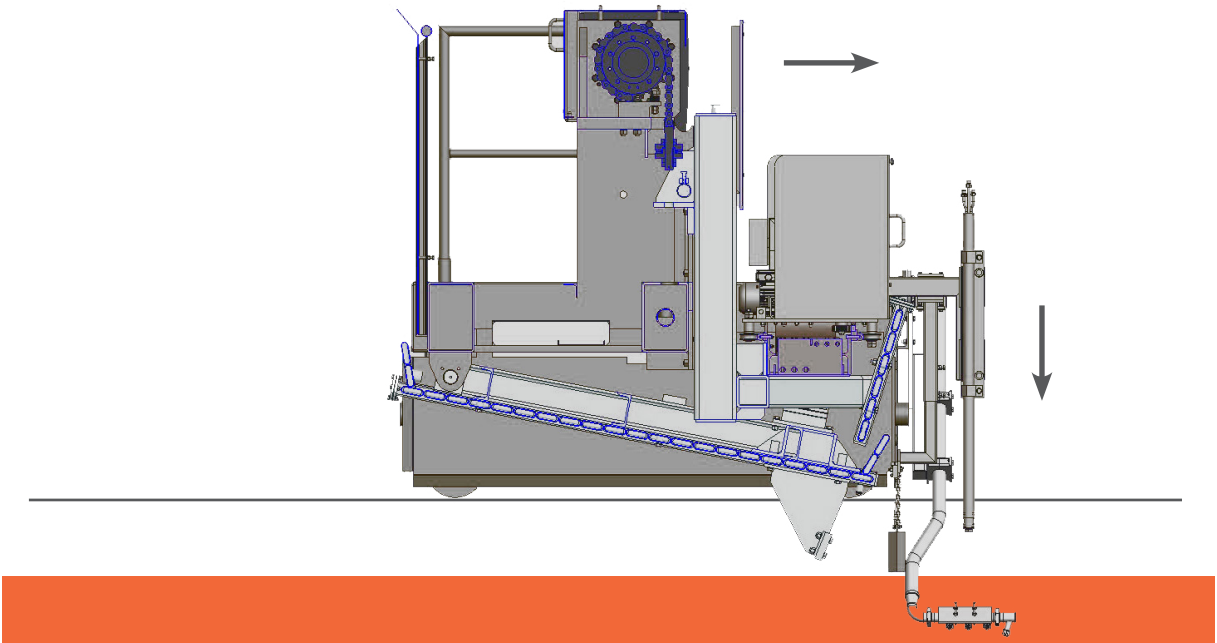
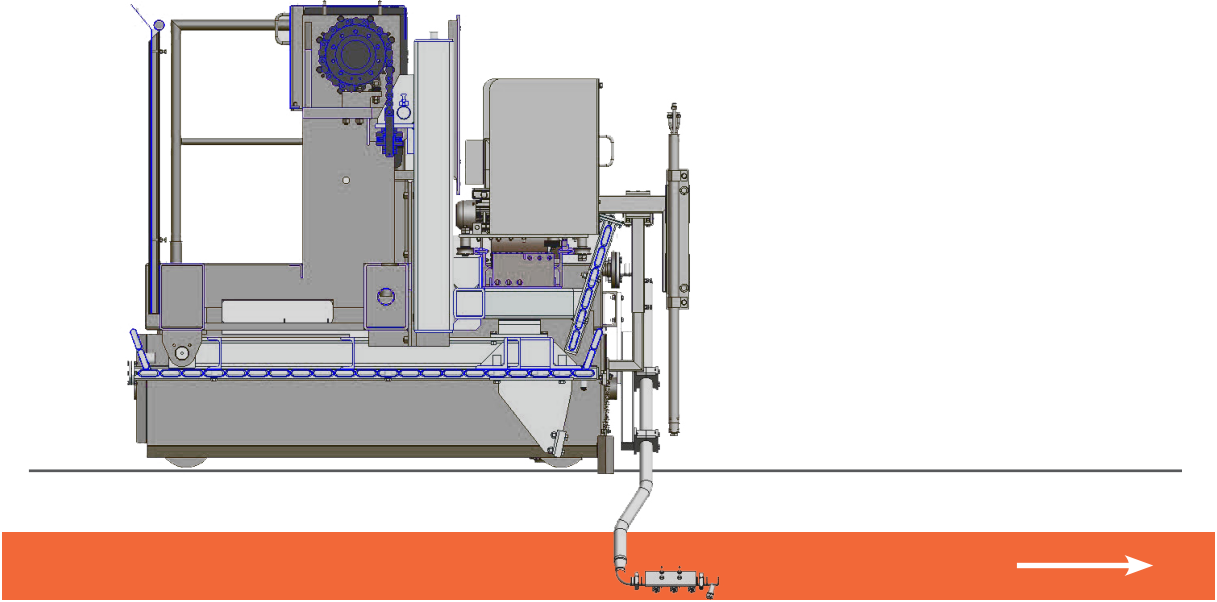


# TECHNICAL DATA



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

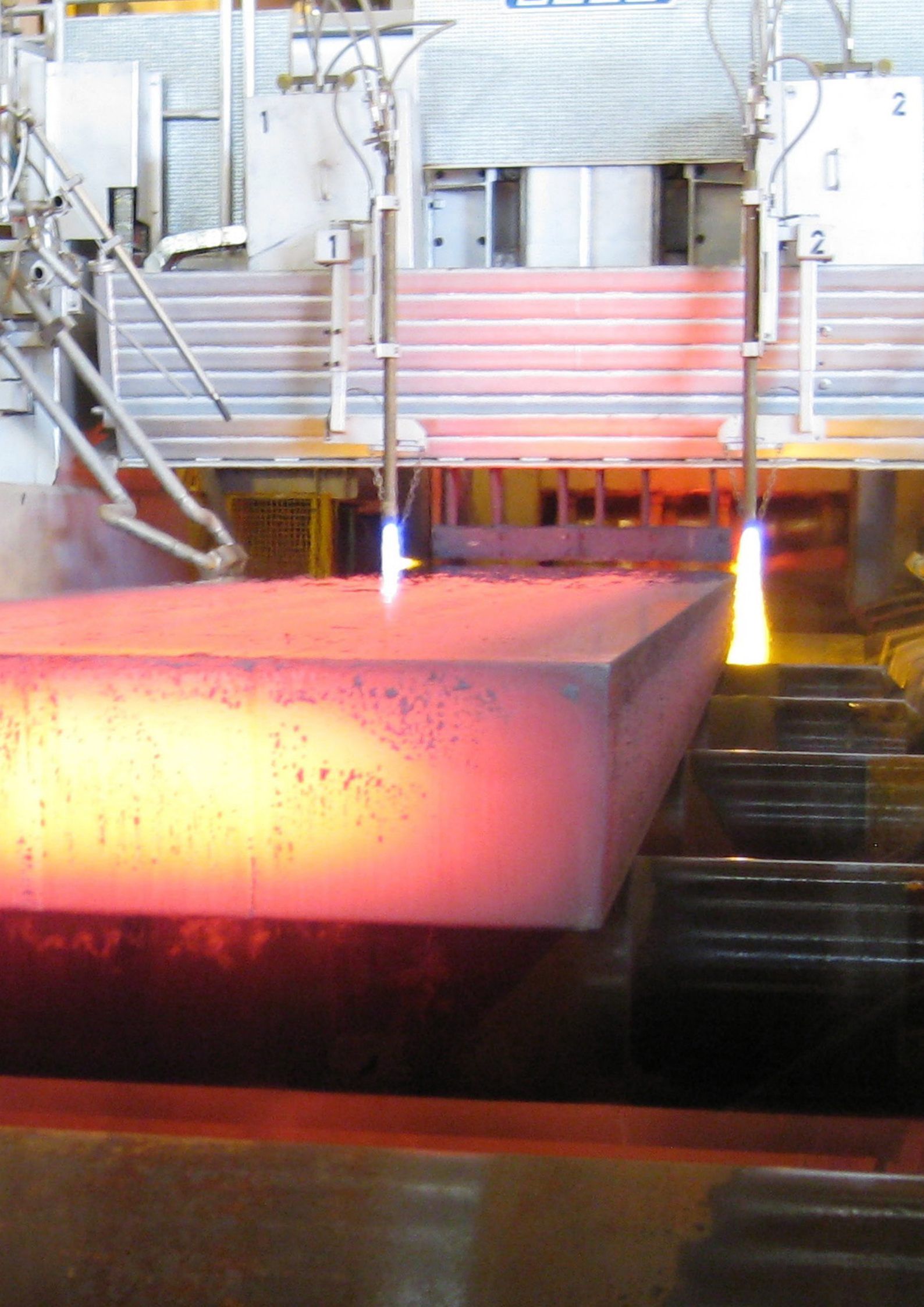
The machine is lowered by a pneumatic cylinder providing a single and simple movement by pushing down the synchronisation skid against the slab. In case of emergency or the machine is not in operation, the skid is back in top position thanks to the rear protection plate used as counterweight.

## 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

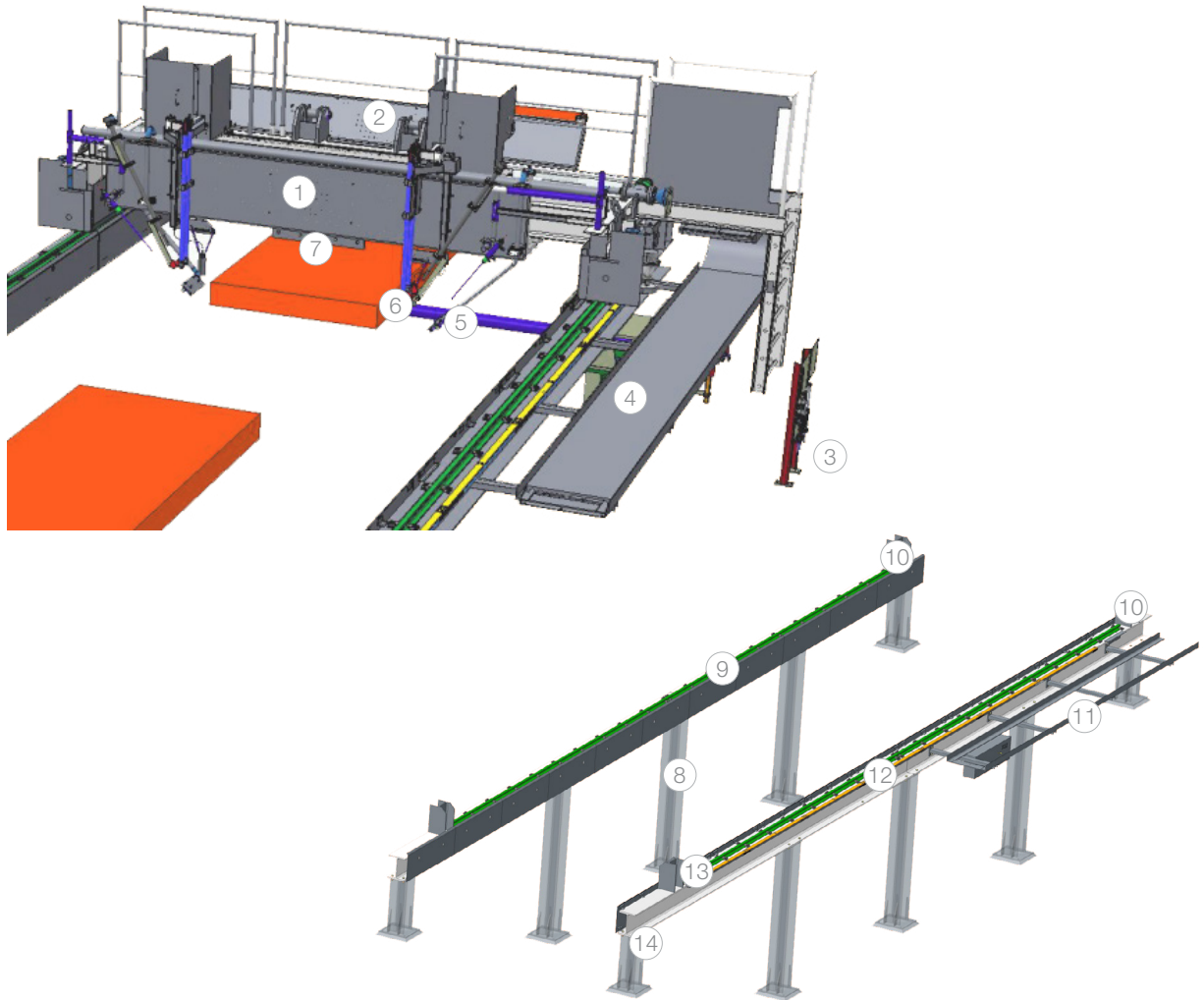








# TECHNICAL DATA



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

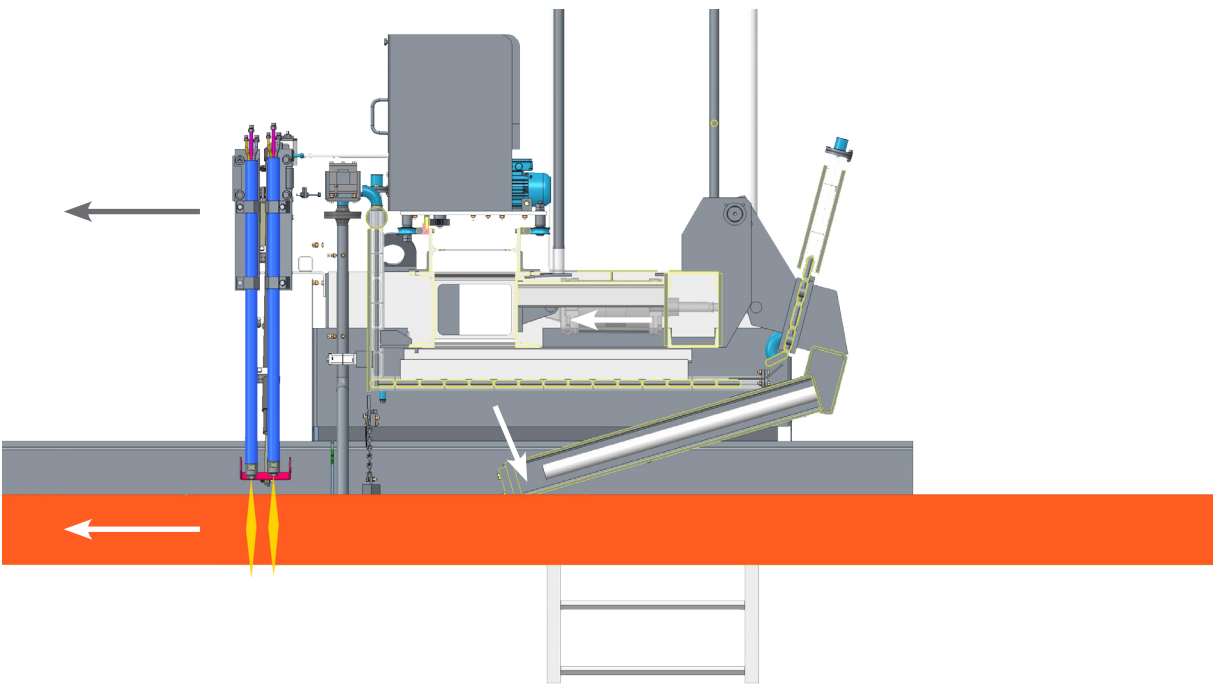
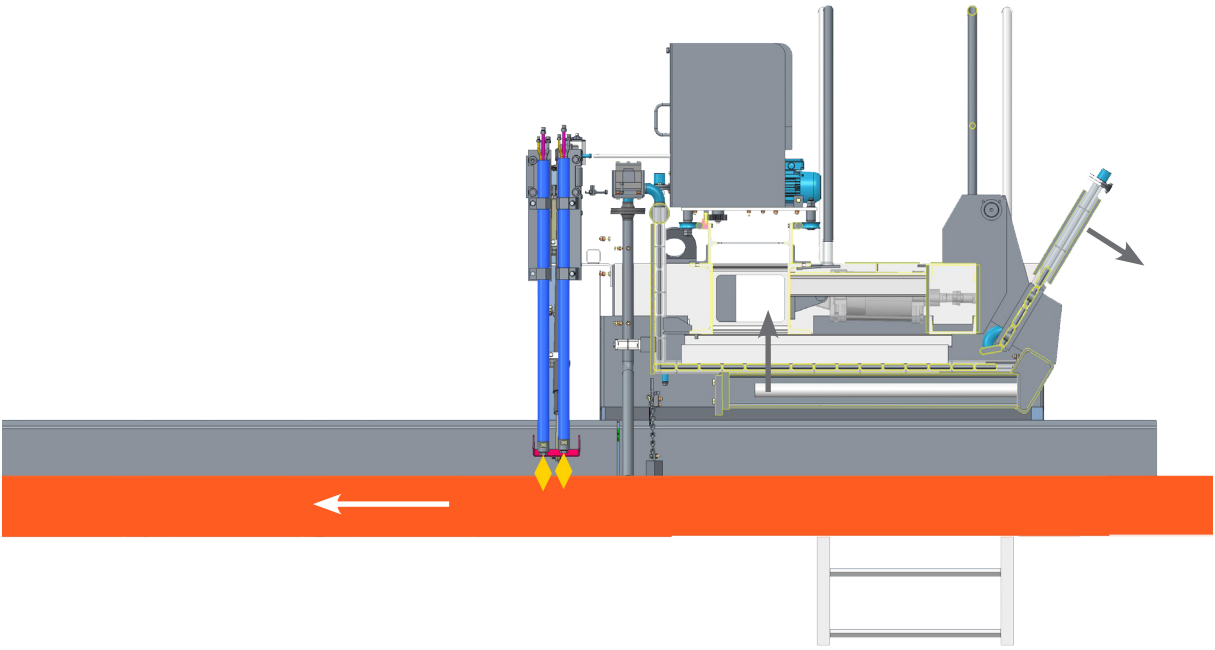
⑩ End buffer

⑪ Tray for cable drag chain

⑫ Drive rack

⑬ Limit switch device

⑭ Horizontal support beams

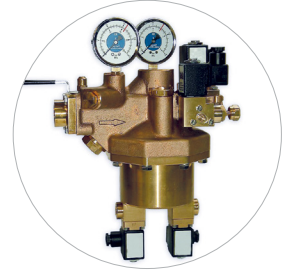




# OPTIONAL EQUIPMENT - SVE/SSC

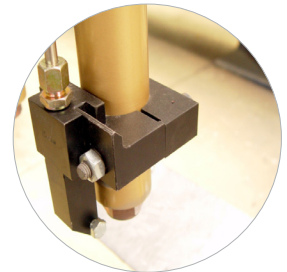
## Heating flame reduction

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.



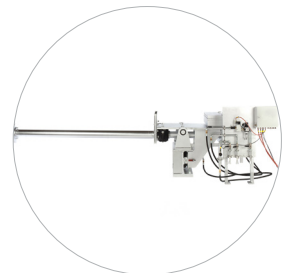
## Electrical ignition and flame detection

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.



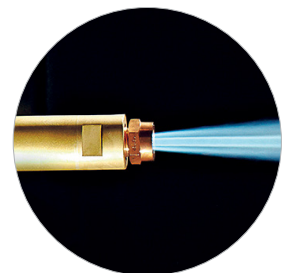
## Length measuring roll

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.



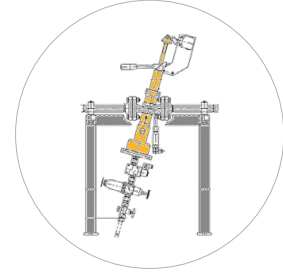
## Torch height adjustment

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.



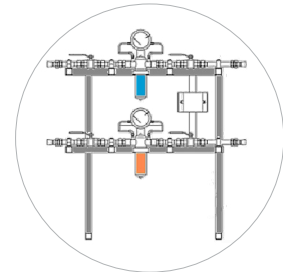
## Emergency shut-off valves

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.

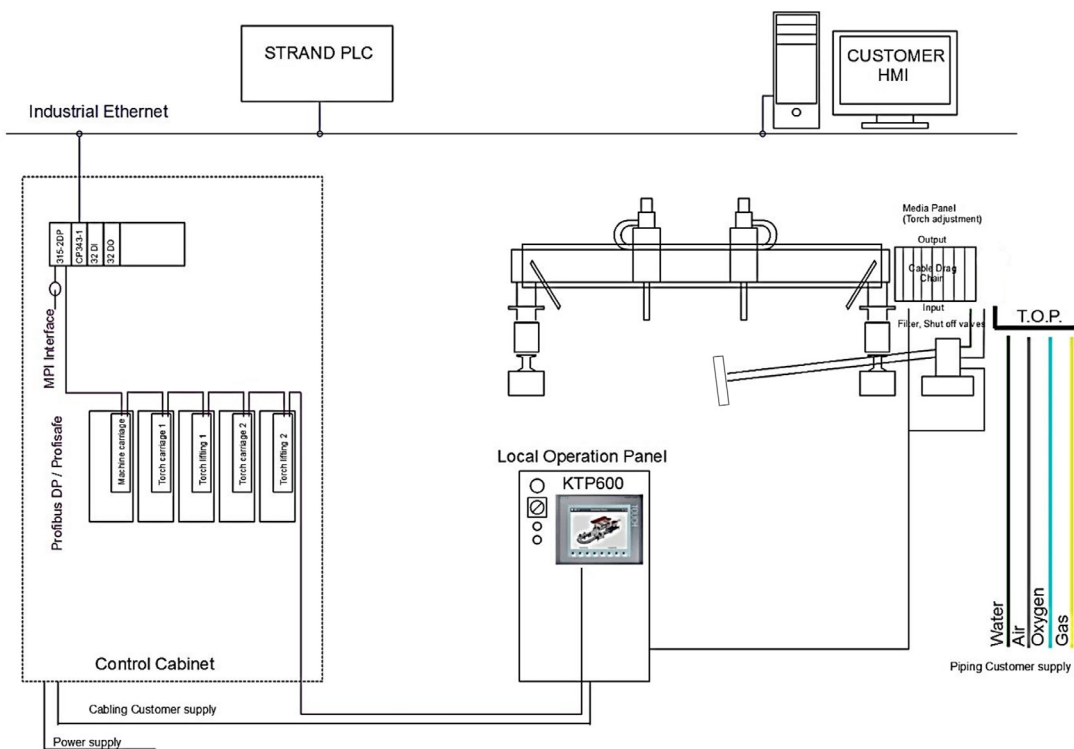


## Filter station

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.

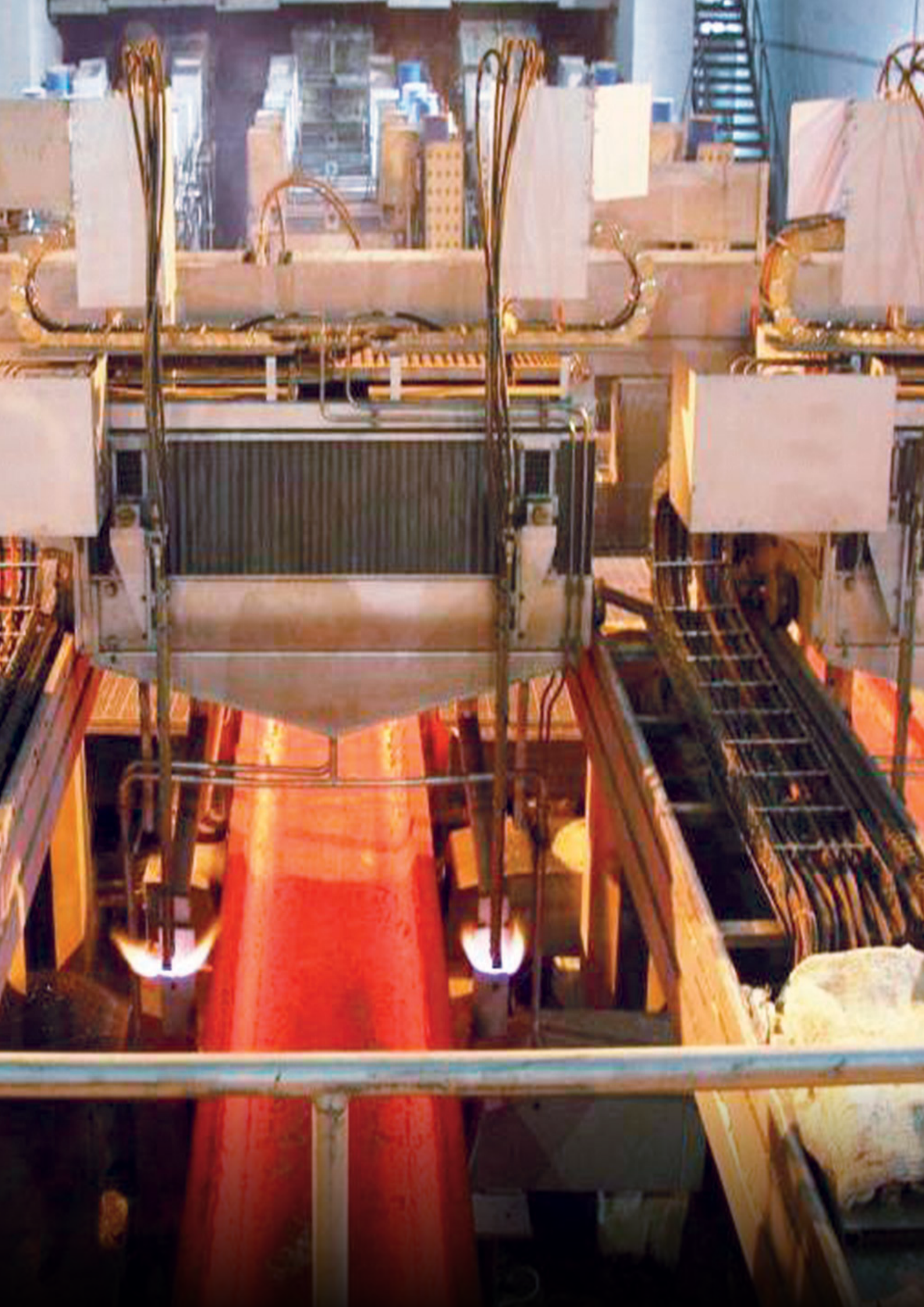
All components such as bearings, drives, valves, cylinders etc. are inside the water-cooled housing and have an optimal protection against the radiant heat. Driving of the machine over the rear axle is carried out by a frequency controlled AC motor with a one-step spur gear and brake. A frequency controlled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

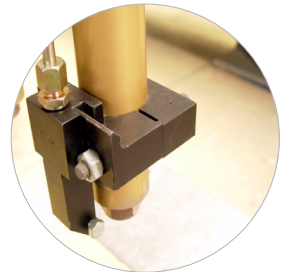
## Length measuring roller beam

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.



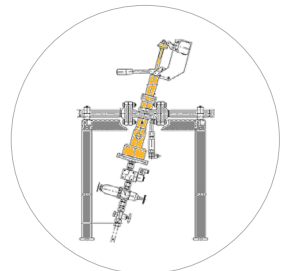
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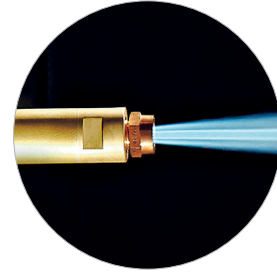
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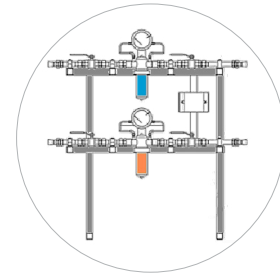
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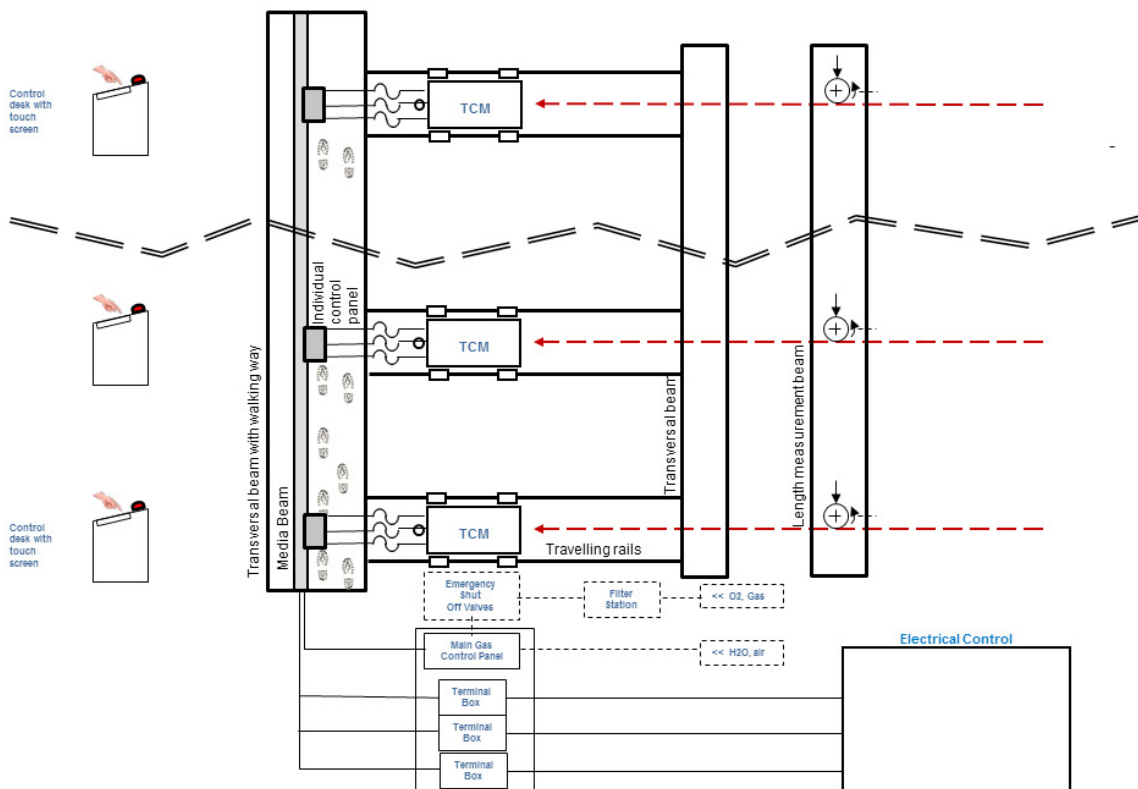


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# HARDWARE CONFIGURATION





# LIFE CYCLE BUSINESS

## Spare parts

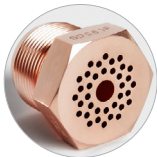
GEGA commits to service also after supply and provides safe and high quality components. All components guarantee a high equipment availability and economical operation costs. The broad spare parts portfolio encompasses:



Special hoses



Flash back arrestor



Nozzles



Burner



Flow controller



GL regulator





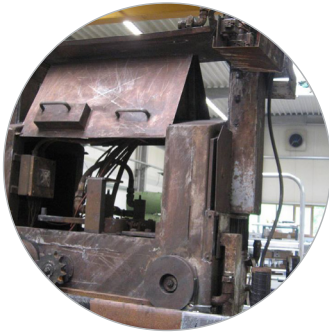




# LIFE CYCLE BUSINESS

## Revamping

In course of the product life cycle of a torch cutting GEGA offers also revamping an existing machine to the latest state of technology. During ongoing operation of existing machines, GEGA inspects the machine on-site, in order to prepare a revamping quote. In case that a spare machine is available from customer site, there is also the possibility to deliver the respective machine to GEGA to save revamping costs. GEGA upgrades not only own torch cutting machines, but also supports customers with revamping of machine from other brands to the high end level of the oxygen cutting technology.



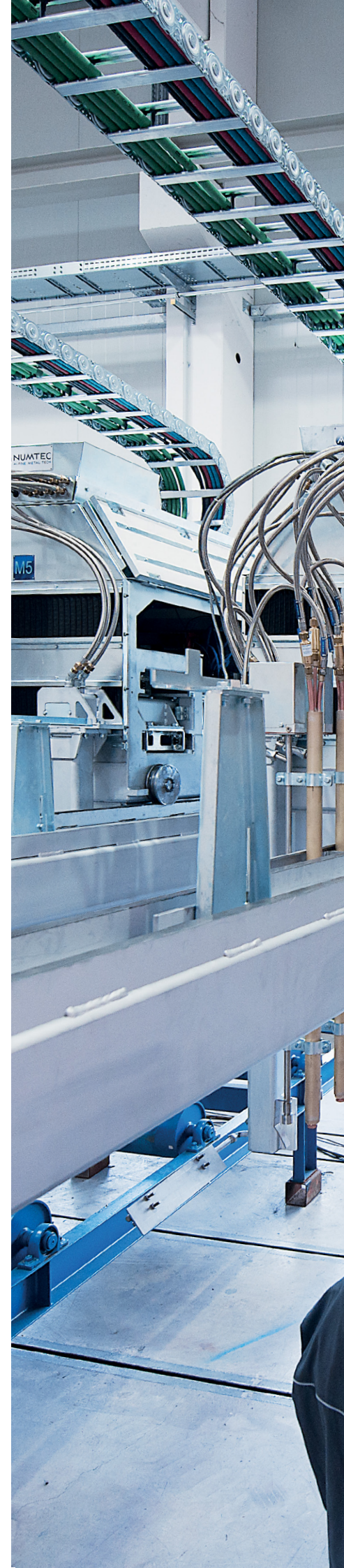
Before revamping



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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