





# GROTTI WE'VE BEEN LOOKING AHEAD SINCE 1967



Grotti srl was founded by Terzo Grotti in 1967. In the early 1980s, with sons Giuliano and Giampiero taking an active part in the company, the business of repair and transformation of industrial vehicles and earthmoving machines was extended to include rentals on a national scale.

In the early 2000s, Grotti srl developed the first radio-controlled GTF with variable operating radius and started working directly on construction sites, both as a supplier of rental equipment with operator and as a specialized contractor.

This step forward, consolidated by the entry of the family's third generation, Michele and Laura Grotti, led to the next stage of development and a vision for the future. With many projects completed in Italy, Grotti srl is now expanding its presence into European countries, including Switzerland, Austria, Germany and France.

In addition to GTF technology, our know-how is based on proven organizational and logistics capabilities. We have the expertise to deal with any operating scenario, from transport to

planning of all aspects to assure the optimum productivity of our machines on site.

This experience clearly translates into safety, a factor we believe of the highest importance to guarantee the protection of both our workforce and customers.



# THE GTF SYSTEM

The GTF system was initially designed to meet a specific application, but then evolved into a technologically advanced and complex solution, truly unique of its kind. What Grotti srl engineered was an innovative solution for milling concrete surfaces inside any type of tunnel. Through constant development, the company has made

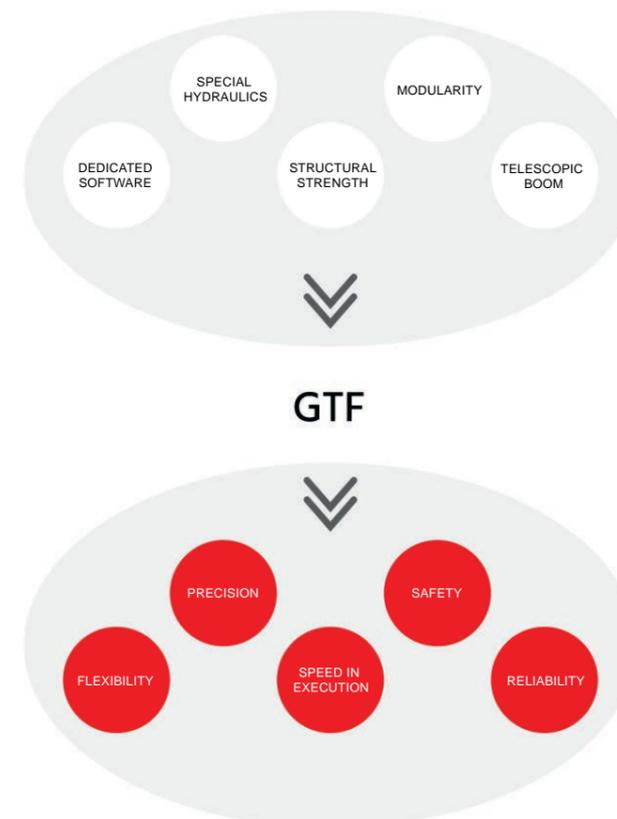
this technology successful also for the excavation of smaller-sized tunnels and excavation faces. The challenge was to design a mid-sized machine, easily transportable, that would incorporate a range of solutions while being suited for specific applications. From the start, the project focused on

two fundamental aspects to achieve productivity and precision: a specially designed hydraulic system and electronic system. Today, the GTF system is installed on three different machines: the GTF 200 RC, the GTF 400 RC and the GTF 600 RC, all tracked, radio-controlled and fitted with a

telescopic boom. The three models differ from each other in weight, size and hydraulic capacity, but all feature a hydraulic system designed and built by Grotti srl in the company's workshop. The fleet was recently added with the GTF 250 RC, which maintains the characteristics of the other models but is

mounted on a modified truck. Thanks to special sensors, the machine operates while automatically adhering to the set parameters, and if needed can be radio-controlled. The GRF 250 RC allows the attachment to be rotated to a vertical position, the only feature it does not share with the other models.

The GTF system enables use of high-productivity attachments to perform milling and cutting of concrete in tunnels and other types of structures, but it is also very effective and productive for excavation of small tunnels where rock masses have a high compressive strength (up to 180 MPa).



# GTF 250 RC

## FOR HIGH-MOBILITY MILLING

The GTF 250 RC consists of a module mounted on a truck, thus it is self-propelled and able to arrive on site without the use of trailers or other transport. The module is composed of an articulated boom in two parts, with the end section telescopic.

The boom configuration makes it possible to operate laterally, above and underground, and also to rotate the attachment 90° so it can be used horizontally and vertically. When set in action, the GTF 250 RC operates with a hydrostatic system and radio control system, which allows all functions to be commanded

from a distance in order to improve visibility and safety of the operator. Like the entire GTF series, the machine can also be video-assisted.

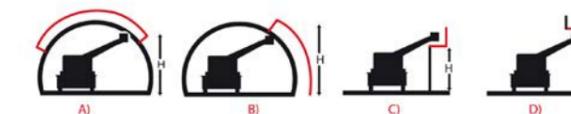
The GTF 250 RC mills and cuts surfaces at a right angle, or sloped or curved. It is especially effective when the space to manoeuvre on site does not allow operation of other machines of the GTF system.

With the GTF 250 RC a wide range of attachments can be used to make cuts, mill concrete structures and pavement,

create cable ducts in tunnel linings, and perform deep milling of asphalt when excavating trenches for utilities installation. And thanks to the power of the installed water pump, it can also clean trenches, inserts and drainage channels.



# GROTTI SRL

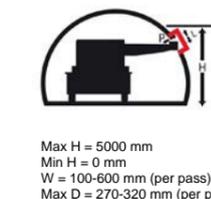


- A) MAX H ROOF AT 90° H = 4600 mm
- B) MAX H ROOF MILLING H = 5000 mm
- C) MAX H VERTICAL WALL AT 90° H = 3800 mm
- D) MAX H VERTICAL WALL MILLING H = 4700 mm

EXCAVATION FLUSH TO WALL  
 MAX DEPTH GUTTER H = 270-320 mm (per pass)  
 MAX WIDTH GUTTER W = 600 mm (per pass)



NEGATIVE EXCAVATION  
 Max H = 1300 mm



WORK AREA (MIN) FROM SIDE/ROOF = 5000 mm  
 MAX H VERTICAL WALL MILLING = 4700 mm  
 MIN H MILLING H = 4700 mm



# THE GTF SYSTEM

## THE GTF SYSTEM: A REAL ROADHEADER

Designed to perform the excavation of small tunnels (water conveyance channels for different types of basins, tunnels linking main tubes of road or rail infrastructure, etc.), the GTF 600 RC can also be used in place of large and costly roadheaders for excavating larger tunnels.

The GTF 600 RC is the result of a special design featuring a robust structure. The machine is fitted with a boom sized to bear heavy stresses, as when excavating rock of over 100 MPa with cutter heads.

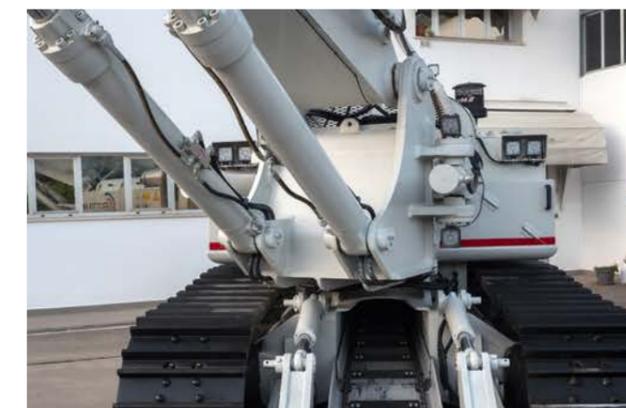
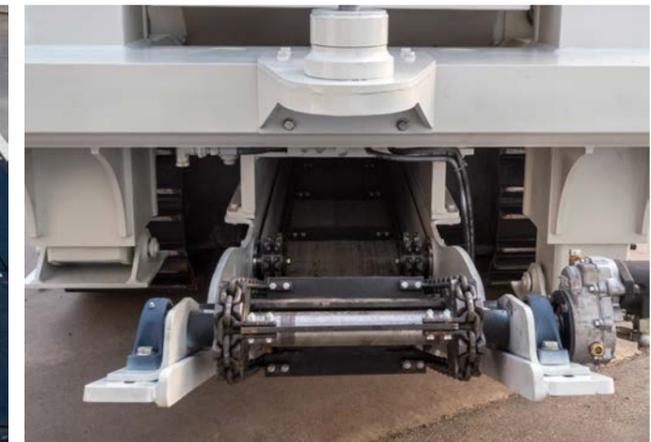
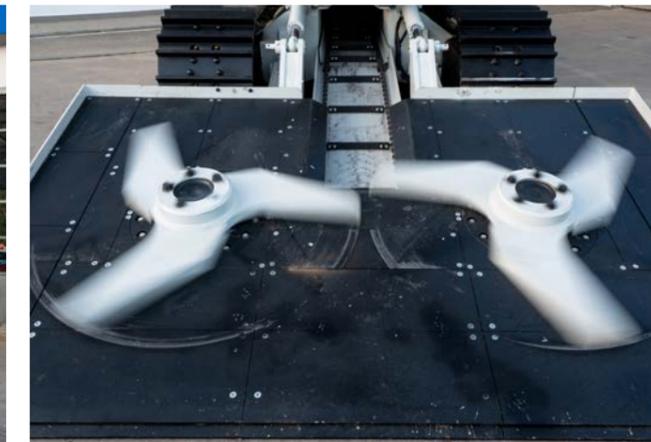
The GTF 600 RC also features a frontal system for collecting material, which is then conveyed under the frame by a belt, then fed onto another conveyor at the rear that unloads the material onto a truck or dumper. Both the front collection system and the rear dumping system can be removed to allow greater



mobility and to use the machine in applications other than what it was designed for. In fact, the GTF 600 RC can be successfully used for excavating niches and safety areas, for organizing and preparing areas to be quarried, or for demolishing large concrete structures.

Thanks to its weight and the stabilizers, the machine allows power to be maximized, and is also equipped with hydraulic fluid cooling systems and special radiators that prevent overheating of the internal combustion engine even in the most difficult working conditions.

Unlike other roadheaders on the market, the GTF 600 RC is radio-controlled and video-assisted, thereby ensuring the best safety conditions, especially in situations where the possibility of rock detaching or the excessive production of dust would put the operator at risk.



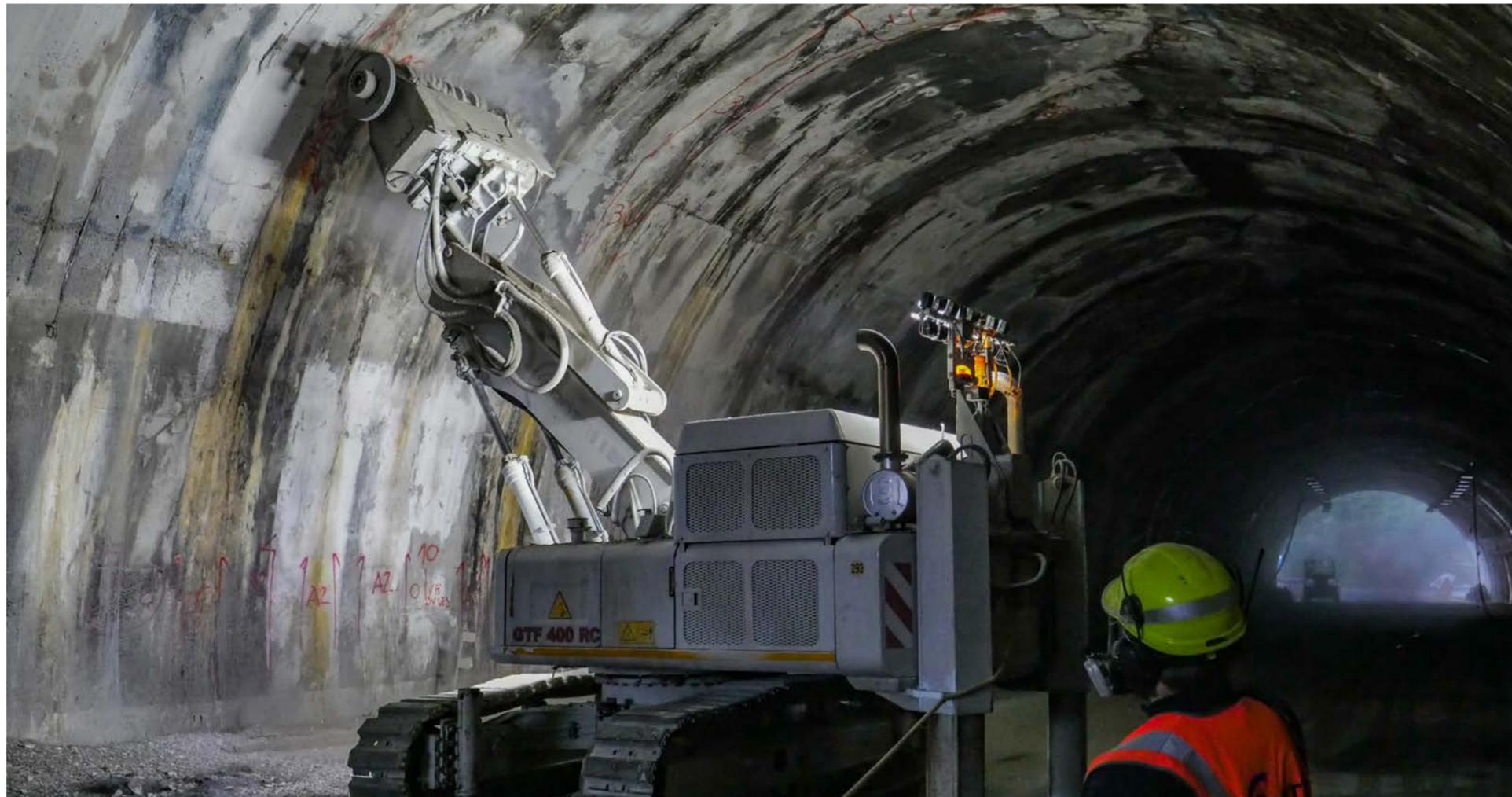
# GROTTI SRL



Specialty milling performed with the GTF system delivers impressive output, as well as ensures extreme precision along long and/or curved sections, such as tunnel linings. It also gives excellent results in applications above ground, for example when having to lower and demolish kerbs along bridges and viaducts.

The GTF system is based on machines with high hydraulic power, structural strength and outstanding reliability. Compared to other milling methods, such as hydro-demolition or attachments mounted on standard earthmoving machines, the GTF system offers significant advantages in terms of logistics, use of site personnel, safety and general work site costs.





## MILLING AND PROFILING

The GTF system is able to mill horizontal surfaces, such as concrete pavement, or vertical surfaces like containment walls of trenches crossed by urban and extra-urban roads, or walls of artificial tunnels.

The system is also used successfully to mill sloped surfaces, such as concrete linings of the banks of artificial channels.

When the project calls for the progressive widening of the section, the GTF system can be utilized to profile the lining with variable thicknesses between the roof and side walls.





### TUNNEL EXCAVATION

Thanks to its exceptional power, the GTF system can also be used for excavating natural tunnels where due to size or safety concerns use of a hydraulic breaker or the drill-and-blast method are not considered options.

The new GTF 600 RC can do the job of an actual roadheader to remove the muck from the excavation face and convey it by belt to a truck or dumper.



## NICHES AND SAFETY AREAS

The GTF system can cut out niches and safety areas from the concrete linings of tunnels, avoiding the use of hydraulic breakers or explosives.

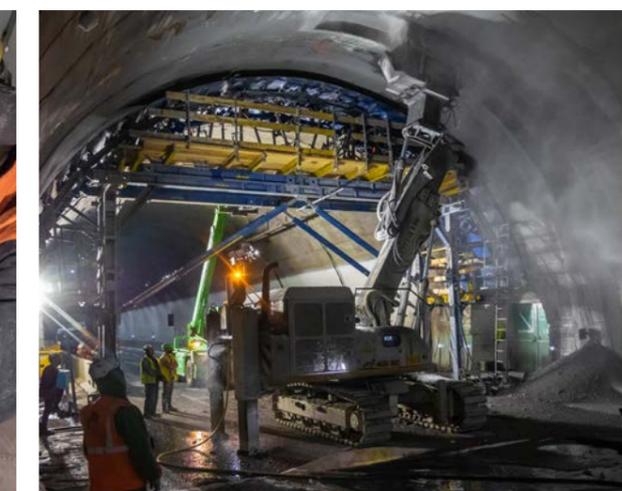


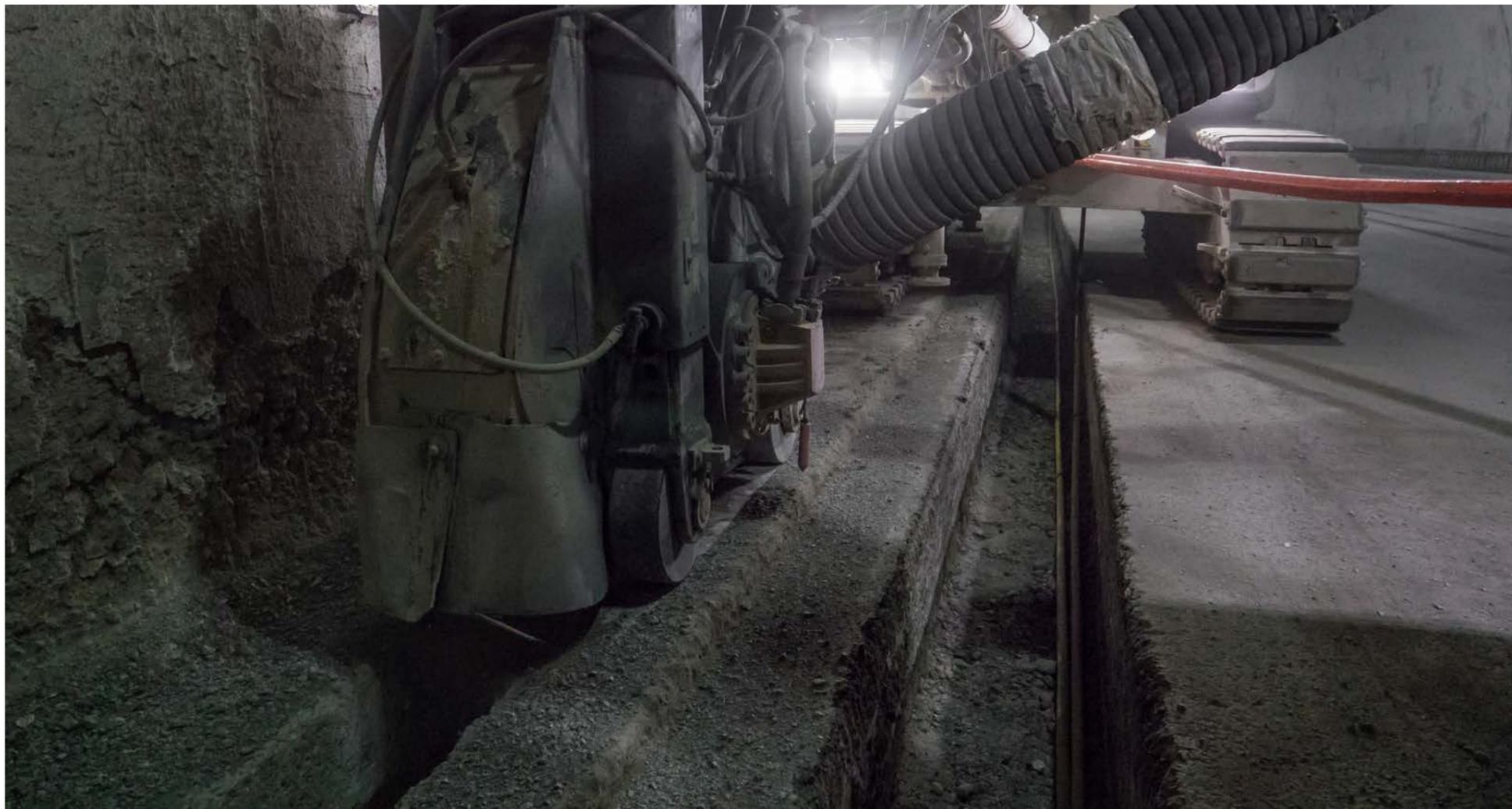
## VERTICAL AND HORIZONTAL DUCTS AND INSERTS

The GTF system can be used to make ducts and inserts required for water conveyance or installation of cable ducts down to a maximum depth of 30 cm.

The speed of execution and precision, whether working vertically or horizontally (the latter made possible by the GTF 250 RC), offer enormous advantages especially when the tunnels are already in operation and must be reopened to traffic as quickly as possible.

The powerful hydraulic performance of the GTF system also enables precise cuts to be made on non-reinforced concrete surfaces up to a 50 cm width and 60 m depth per pass.





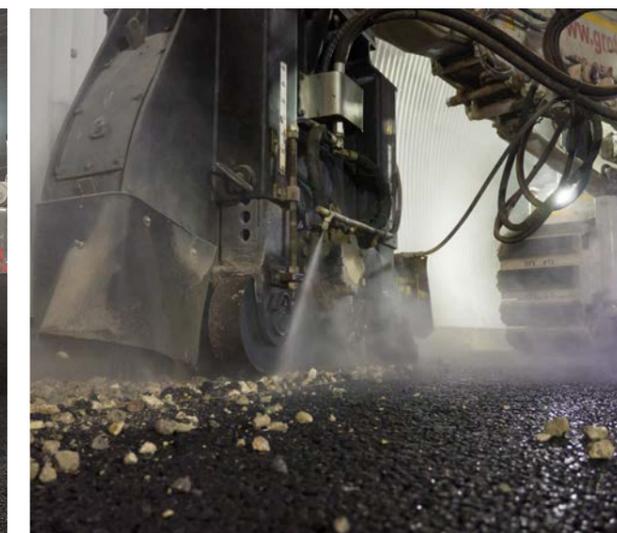
### TRENCHES AND GUTTERS

The GTF system attached with special wheel saws can make trenches for the installation of cable ducts or create small water channels up to a 50 cm width and 60 cm depth.

The GTF system can also be used to make drainage channels, and when fitted with narrower wheel saws to lay fibre optic networks.

Coupled to milling machines with special drums, the system can create gutters in different widths and depths. Regardless of the application, trenching is extremely precise even along lengthier sections and, if necessary, the GTF can go flush against the wall and totally empty out the excavated section.

Thanks to the machine's hydraulic power, work is performed much faster compared to traditional methods.





### DEMOLISHING AND LOWERING KERBS

The GTF system is ideal for demolition to modify structures in reinforced concrete, or demolition of concrete pavement in port and airport areas or inside industrial buildings.

It is also an excellent solution for demolishing and lowering kerbs. When hydraulic breakers are used for this application, the process is time-consuming and does not result in even surfaces.

The GTF system, instead, offers exceptional productivity and precision; it can also handle the presence of rebars so that flame cutting is minimized and the job gets done faster.



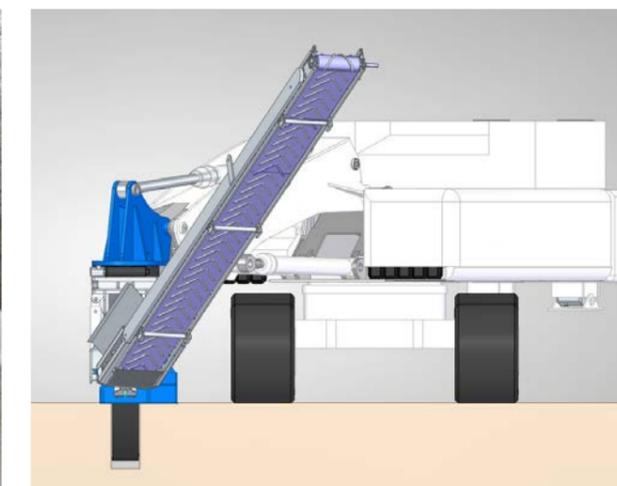
## MILLING

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## CUTTING CONCRETE

The GTF system, when coupled with special wide-diameter wheel saws, can be used to make cuts into concrete, asphalt or natural rock down to a depth of 60 cm.



# OUR SERVICES

## THE GTF SYSTEM

### RENTAL WITHOUT OPERATOR

The machine is rented based on a daily or monthly rate after training the operator(s) assigned to use it. This solution includes technical assistance for routine maintenance or other repairs/maintenance that become necessary.



### RENTAL WITH OPERATOR

The machine is rented and utilized by our operator based on a monthly or daily rate, or else a production cost per square metre, and in certain cases, a cost per cubic metre or linear metre (e.g., based on the advance rate in tunnel excavation).

This solution includes technical assistance for routine maintenance or other repairs or maintenance that may become necessary. The customer must in any case establish the administrative, logistical and operating conditions to allow our operator to maximize the production potential and precision of the machine.



### TECHNICAL AND OPERATIONAL CONSULTING

Grotti srl also offers long-term rentals and provides training of personnel who will use the GTF system to perform complex jobs or projects of a long duration.

Thanks to our extensive experience on dozens of work sites, we can also help the contractor select the best equipment for the type of job, as well as coordinate a plan that takes into account the logistical aspects of the site (dust control, work scheduling in relation to other site activities, etc.).





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