SINCE 1956

DAY BY DAY QUALITY PRESTIGE

www.gasparimenotti.com

MULTIWIRE

多条钻石索锯机

GMW SERIES 系列

GASPARI MENOTTI

PRESTIGE ADVANTAGE

- Available with wire diameter 5,3 mm, 6,3 mm e 7,3 mm also in marble version
  可提供7.3 mm毫米, 6.3 mm毫米 及 5.3 mm毫米直径钻石索锯机型，也可切大理石
- Reliable and with minimal operating costs
  可靠又经济
- Flexible and intuitive
  灵活又直观
- Certified Industry 4.0
  工业4.0 认证

MULTIWIRE MACHINES
多条钻石索锯机

GMW SERIES
GMW 系列

FOR GRANITE AND MARBLE
花岗岩和大理石

USER FRIENDLY
用户友好

RELIABLE
可靠

The GMW multi-wire machine range represents the excellence in the cutting of granite, marble and ornamental rocks in different thicknesses thanks to its important structure vibrations free, that allows a longer life of the wire, an easy user control system and an unmatched reliability.

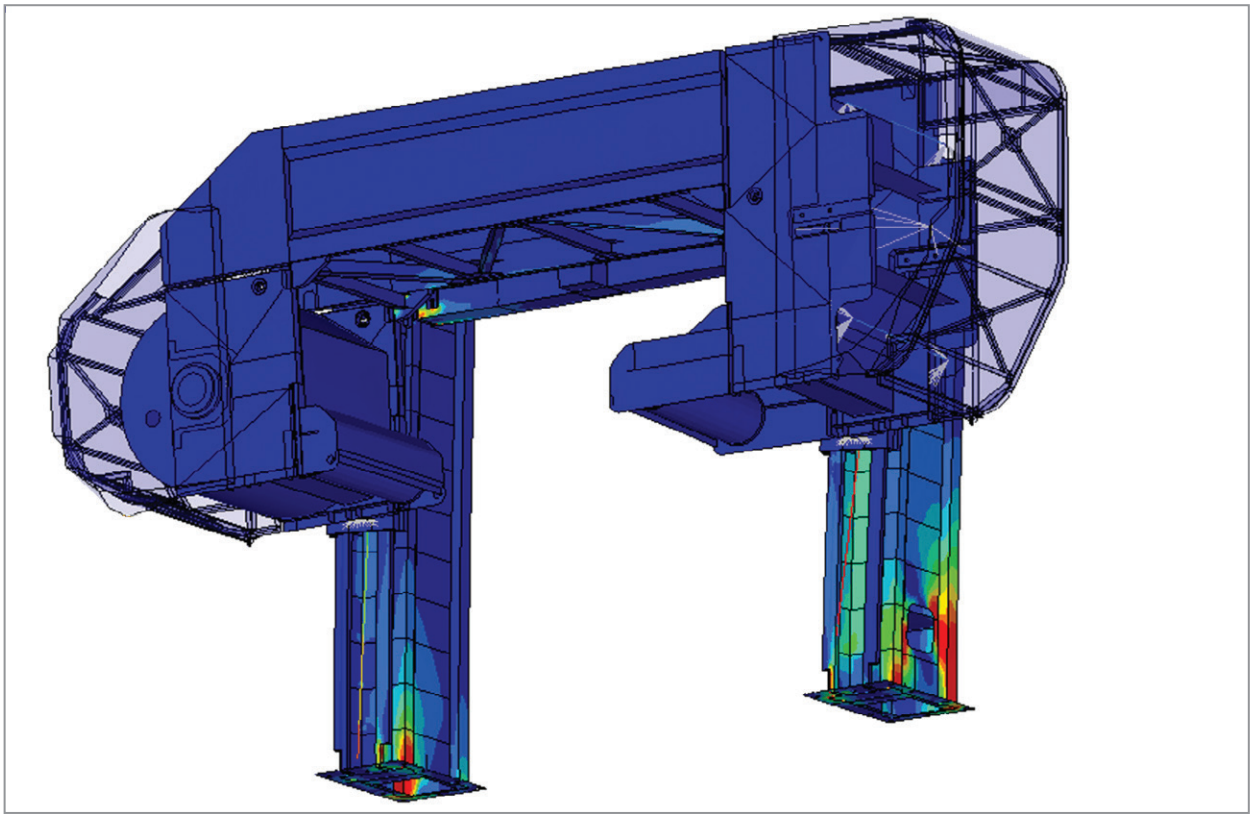
GMW多条钻石索锯机型系列，彰显了用于花岗岩和大理石切割卓越之处，因为其重型结构免于产生机器震动的困扰，继而允许钻石索锯延长了寿命，易于用户控制系统和无与伦比的可靠性。

IN-DEPTH DESIGN RESEARCH

深度的设计研究

The GMW multi-wire was entirely designed with one of the most advanced 3D CAD systems on the market.
All the important structural components have been designed and verified, both in terms of resistance to the stresses produced during the work phase and to the deformations undergone, through the use of a sophisticated FEM software.
With the use of these design support systems, objectives that were unthinkable with the old methods were achieved, both in terms of optimization of the material for the purpose of stiffness and in terms of final performance of the machine.

GMW多条钻石索锯机完全采用市场上最先进的3D CAD 系统之一进行设计。
所有重要的结构部件都经过了精心设计和严格验证，包括石材在加工过程中产生的应力抵抗力，以及通过使用FEM复杂的有限元软件所经受的变形测验。
随着这些设计支持系统的使用，这些目标是无法想象的。配合以前传统经验法则做基础，都是为了要达成优化材料刚度和发挥机器的最佳性能。



SYNERGY SKF/GASPARI MENOTTI

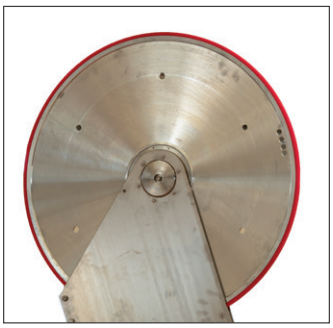
协力 SKF / 嘎斯巴利 Gaspari Menotti

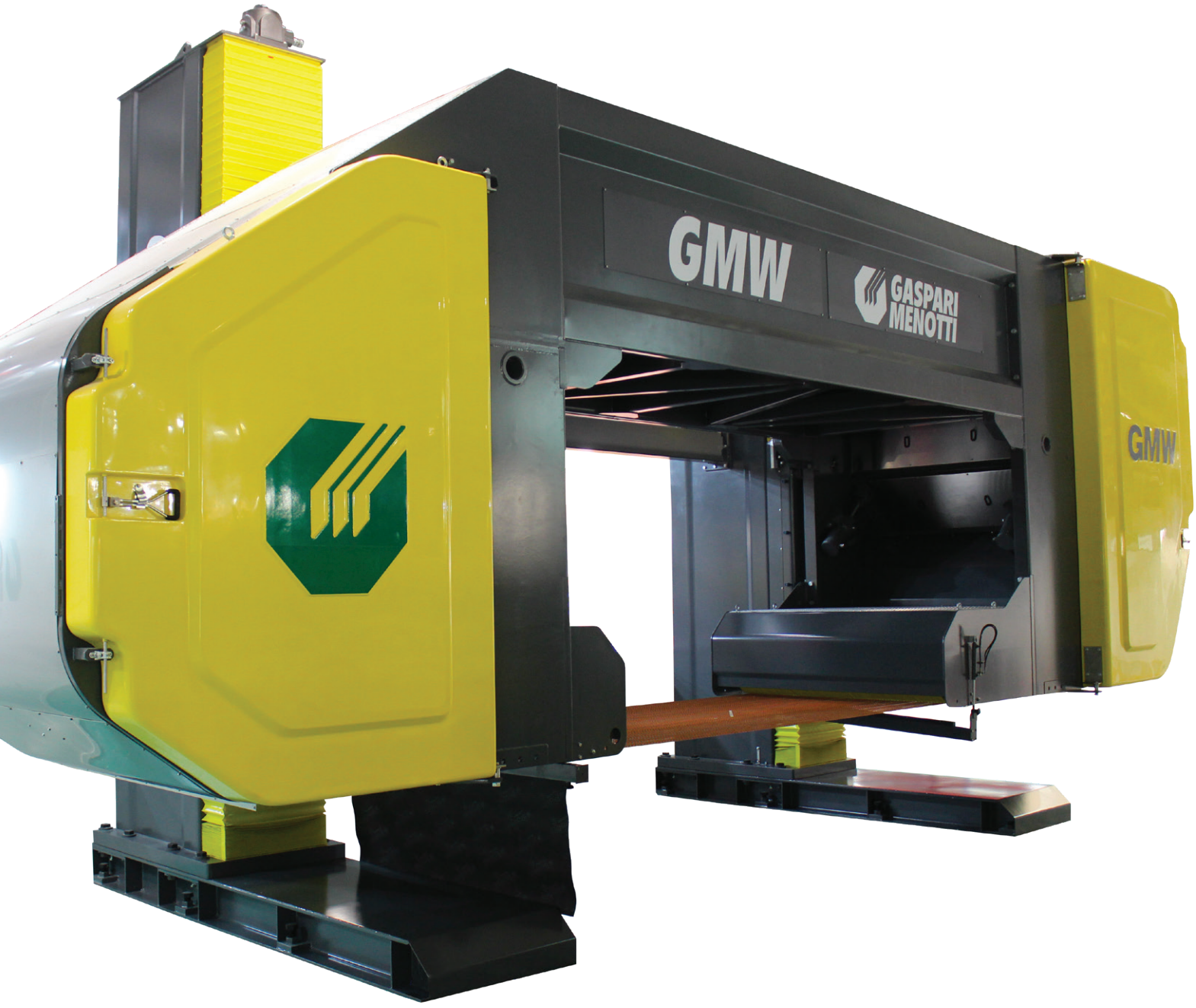
Pulley guiding precision and reliability were the most demanding GMW design challenges immediately. The operating, driving and tensioning system of the diamond wires requires the use of a number of ball bearings equal to the maximum number of wires that can be fitted to each GMW model, plus the same number of bearings that support the tensioning pulleys of smaller diameter, individually operated by a hydraulic actuator and arranged staggered on two axes.
Taking into account the unavoidable clearances, in the axial space of about 20 mm there must be one bearing with a cage, the rolling elements, the two rings and the seals. All in a hostile environment, characterized by the presence of water mixed with granite dust. Furthermore, the presence of hundreds of lubrication points constituted a significant source of costs and an intrinsic limitation for the reliability of the system. The result of this collaboration, with a high technological content, was the definition of a special bearing, characterized by the coupling of the pulley by means of a flange and lubricated with grease for life, exploiting a technology already used in the manufacture of bearings for car wheels.

滑轮导向精准和稳定性是GMW多条钻石索锯机设计中最具挑战的要求。
钻石索锯的操作、驱动和张紧系统需要使用相当于每个型号GMW多条钻石索锯机所能安装最大钻石索锯条数量的滚珠齿轮，再加上支撑直径较小的张紧滑轮的相同数量的轴承，这些轴承由液压制动器单独操作并交错排列在两个轴上。
考虑到不可免的间隙，在大约20mm毫米的轴向空间内，必须有一个带支撑架的轴承、滚动组件、两个环和密封件，所有这些都是在恶劣的环境中进行，其特征是水与花岗岩粉尘混合。

RELIABILITY: LET'S REDEFINE THE CONCEPT

可靠性: 让我们重新定义这种概念




GMW
GASPARI
MENOTTI
GMW

GASPARI'S PROJECT
嘎斯巴利的设计计划

SIMPLE AS A TWO-COLUMNS MACHINE BUT WITH THE SAME RELIABILITY AND RIGIDITY AS A FOUR-COLUMNS MACHINE

简单如两柱的机器，但具有与四柱机器相同的可靠性和稳定性。

The GMW is designed with a two-column structure in which the cursors that support the arch-shaped cutting frame run.
The driving part consists of a large diameter flywheel, connected to the engine with a special synchronous belt, while the tensioning part is composed of a shaft with idle pulleys and a system of single tensioning pulleys for each diamond wire.
The GMW multi-wire is equipped with a water distribution system to cool the wires during cutting.
The constructive choice of the two columns allows ease of use and economy in the assembly and disassembly of the wires. The arch structure, made with bent and box-shaped steel plates that give it extreme stiffness, withstands the tension of the diamond wires, leaving only the burden of supporting the cantilevered part on the columns.
This solution makes it possible to combine the advantages of two-column machines with regard to ease of use and management of the wires with those of the four-column machines regarding the non-deformability of the system.

GMW多条钻石索锯机采用双柱结构设计，以支撑拱形切割框架上的滑板灵活上下运行。
驱动部分由一个大直径飞轮组成，通过一个特殊同步传动带与发动机相连，而张紧部分由一个带惰轮的轴和一个用于每条钻石索锯的单张紧轮系统组成。
两个柱子建设性的设计，让钻石索锯拆装更容易也更具经济性。拱型结构由弯曲的箱型钢板制成，具有极高的钢度，能充分足够承受钻石索锯拉力。剩下支撑柱子上悬臂部分的负重，这解决的方式可以将两柱机器的优点与钻石索锯的易用性和管理与考虑到四柱机器系统的不变形性有关。

FOR A LONGER LIFE OF THE WIRE

为了寿命更长

The diamond wire moves around five points, a motor drum A, a tensioning pulley B, a neutral axis C and two guiding wire cylinders D1 and D2.
The wire is tensioned diagonally on the pulleys B.
The machine is equipped with a pre-tensioning and a final precision tensioning, both of hydraulic type.
This allows:

- **longer life of the wire as it is subject to a lower number of bends, thanks to the bigger diameter of the tensioning pulleys, compared to other machines on the market;**
- **greater cleanliness of the parts suitable for wire tensioning. In fact, the inclined configuration allows better evacuation of dirt;**
- **greater machine reliability due to the lower total number of bearings and lower stress on the tensioner pulley bearings;**
- **easy maintenance of the tensioner pulley bearings, which can be simply removed individually.**

钻石索锯绕着三个滚轮转动: 一个电机滚轮A；一个中性轮B；一个张紧轮C。
钻石索锯是对角张紧在滚轮C上。
机器配有预张紧及最终精密张紧，两者都是液压式。这允许了:

- 与市场其他厂牌机器相比由于嘎斯巴利张紧轮直径更大，能让钻石索锯的使用寿命更长，与接触滚轮弯曲的次数更少。
- 更清洁的零组件适合于钻石索锯张紧。事实上倾斜的配置可以更好地将污垢清除。
- 由于轴承总数较低，“张紧轮轴承上的应力也相对较低”，因此机器稳定性更高。
- 易于张紧轮的轴承维修，只要单独拆卸即可。

STRUCTURE
结构

THE FRAME STRUCTURE
框架结构

The structure is made of bent and box-shaped of electro-welded steel plates to achieve maximum rigidity and minimal deformation.
The tensions of the wires both from the motor side and from the tensioner side are discharged, through shaft supports, symmetrically on the structure of the frame, which, thanks to its non-deformability, guarantees absence of vibrations, constancy and precision of tensioning.
The great advantage of this solution consists in the fact that every single diamond wire works in the same tensioning conditions, thanks to the total symmetry of the frame structure, allowing to obtain slabs with constant thickness and excellent surface finish.

该结构由弯曲和箱形电焊钢板制成，以达到最大刚度和最小变形。

电机侧和张紧器侧的钻石索锯张力通过轴支架在框架结构上对称释放，由于其无变形性，可确保无振动、恒定性和张紧精度。

这 这种解决方案的最大优点在于，由于框架结构的完全对称性，每根单根钻石索锯都能在相同的张拉条件下工作，从而获得厚度恒定、表面光洁度优良的板材。

THE COLUMNS
机器的柱子

The columns are made of electro-welded steel plates with a box-like structure of exceptional rigidity. In the front part there are vertical sliding and rectified steel profiles on which the large cursors slide with adjustable skids in anti-friction material.
The movement takes place through the combined action of an oleodynamic cylinder and a screw-and-nut system with a generous trapezoidal profile, driven by a brushless gear motor and grease lubricated; everything is protected by a bellows.
The slide-guide system is lubricated through greasing points located in an easy position directly on the slider.
The whole column-cursor assembly has been studied to allow downward movement of the diamond wire set during all cutting phases and to guarantee great stability to the machine and continuity of work over time.

立柱由电焊钢板制成，具有非凡刚性的箱形结构。
前部有垂直滑动和矫正型钢型材，大型滑板在其上滑动，它由带有防滑材料制成的可调滑橇。
这一运动是通过一个液压动力缸和一个具有宽大梯形轮廓的公螺丝和螺母系统联合作用来实现的，该系统由无刷齿轮电机和润滑脂润滑驱动；所有东西都由波纹管保护。
滑动导轨系统通过直接位于滑块上一个举手可及位置的润滑点进行润滑。
整个立柱滑板总成已经过仔细研究，以保证机器的稳定性和工作的连续性。

THE ELECTRICAL PANEL BOARD: A CONCENTRATE OF TECHNOLOGY CERTIFIED INDUSTRY 4.0

配电板：技术认证工业4.0的集中体现

The electrical / electronic system has been designed and built by adopting a FIELD BUS system, with consequent simplification of the wiring, guaranteeing a reduction in the possibility of failures and, possibly, a more rapid and punctual search for them.
Inside there are the best electrical and electronic components in order to guarantee extremely high reliability.
The use of the latest technology follows the guidelines dictated by the canons of "Industry 4.0" so as to make the machine already compatible with future technologies, and translates into greater overall reliability and much faster and safer diagnostics.

电气/电子系统的设计和建造采用了现场总线系统，从而简化了接线，保证了减少故障的可能性，并可能更迅速和及时地查找故障。
内部有最好的电气和电子组件，以保证极高的可靠性。
最新技术的使用遵循了“工业4.0”的准则，使机器已经与未来的技术兼容，并转化为更高的整体可靠性和更快、更安全的诊断。

PRETENSIONING OF WIRES
钻石索锯预张紧

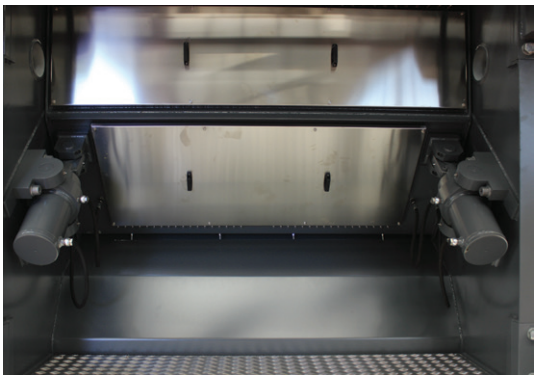
In multi-wire machine, for each individual wire, it is essential to guarantee precise, constant and easily manageable tension in the various working phases, so as to make the best use of the cutting and durability qualities of the diamond tool.
Gaspari's solution includes a double tensioning system.
At first, the GMW performs the general pre-tensioning of the entire tension pulleys assembly, to bring the wires into tension.
The operation is carried out by means of a pair of large hydraulic pistons which, through special wheels with anti-corrosion (stainless) bearings, make the whole structure containing the tensioning pulleys translate upwards on sturdy guides, with diagonal movement.

在多条钻石索锯机中，对于每根单根钻石索锯，在各个工作阶段保证精确、恒定和易于管理的张力是至关重要的，这样才能充分利用钻石刀具的切削和耐用品质。

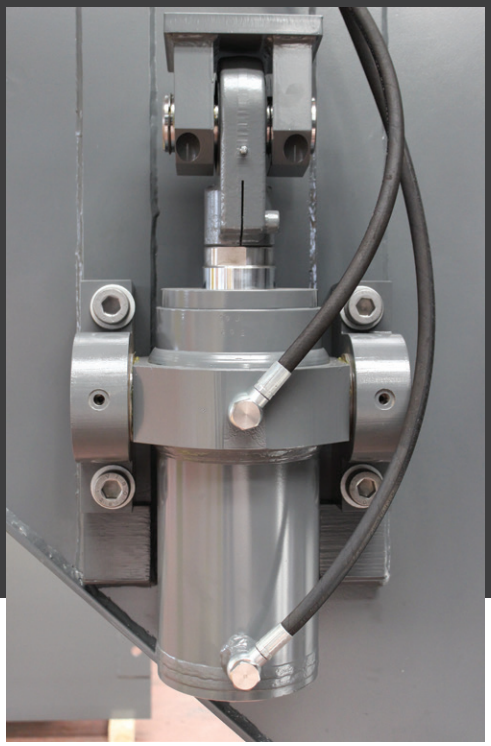
嘎斯巴利的解决方法，是以一套双张紧系统包覆住。

首先，GMW多条钻石索锯机对整个惰轮总成进行预张紧，以使导索锯进入张紧状态。

此操作通过一对大型液压活塞进行，该活塞透过防腐蚀（不锈钢）轴承的特殊支撑轮，驱使包含张紧轮的整个结构在坚固的导轨上，向上平移并呈对角线运动。



Special hydraulic piston for pre-tensioning the system
用于预张紧系统的专用液压活塞



WIRES TENSIONING SYSTEM

钻石索锯张紧系统

Once the general pre-tensioning of the wires has been completed, the final working tension is obtained for each single wire with a single-pulley device, independent of each other, each driven by a hydraulic cylinder for continuous wire tensioning.
A hydraulic unit, through a proportional valve, continuously monitors and adjusts the operating pressure of the cylinders in the various work phases.
The position of each single pulley is monitored using sensors.
With this system, every single diamond wire is controlled by the management software which automatically manages each working phase, both in terms of voltage and displacement, thus optimizing the cutting parameters with the variation of the material treated and obtaining remarkable results both in terms of cost and of reliability of the machine-wire system.

一旦完成钻石索锯整体的预张紧后，每根单根索锯实际工作需要的最后张力，再由各个独力的支撑轮装置获得，每个支撑轮装置是由一个液压缸驱动。

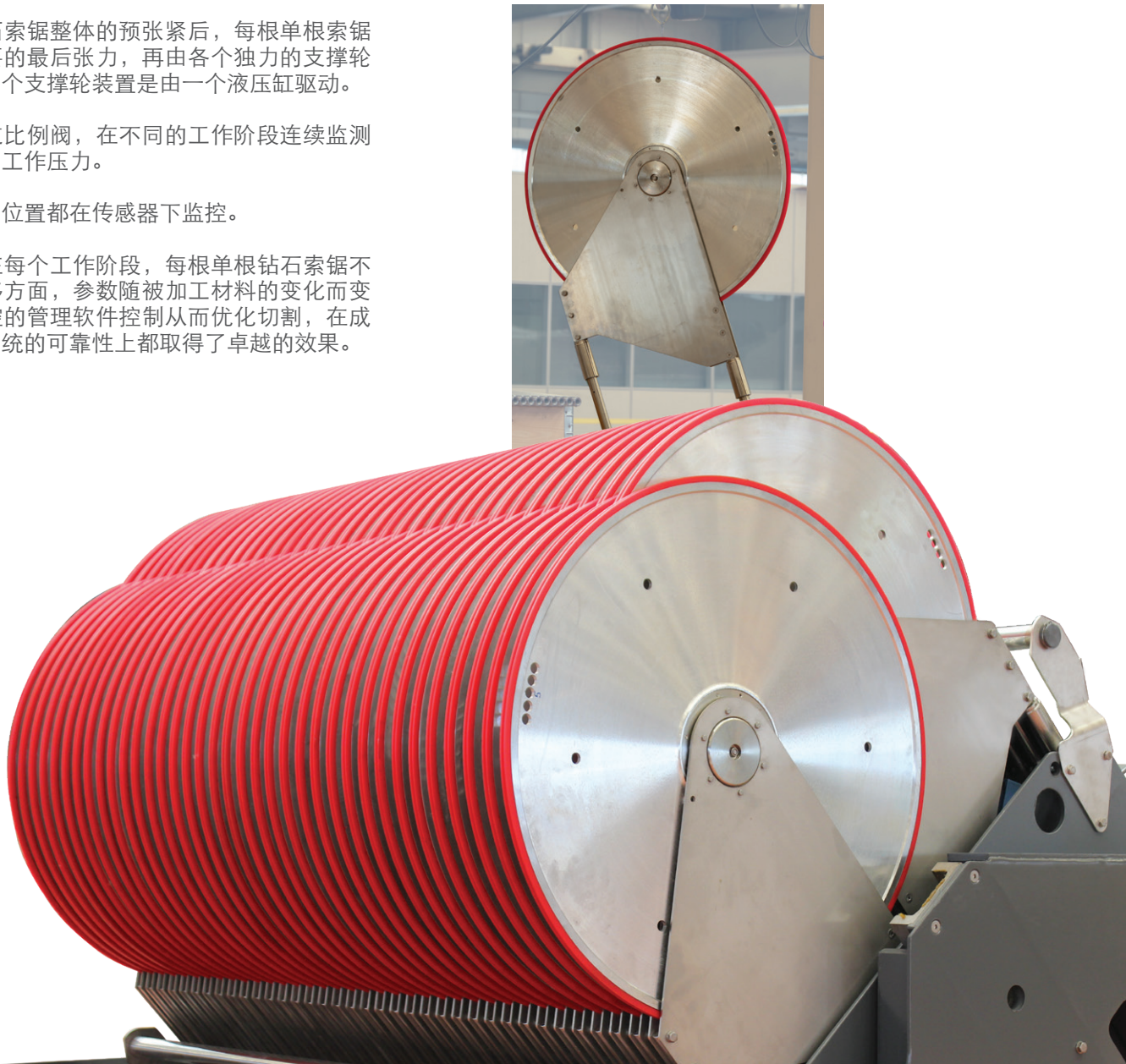
液压装置通过比例阀，在不同的工作阶段连续监测和调整气缸的工作压力。

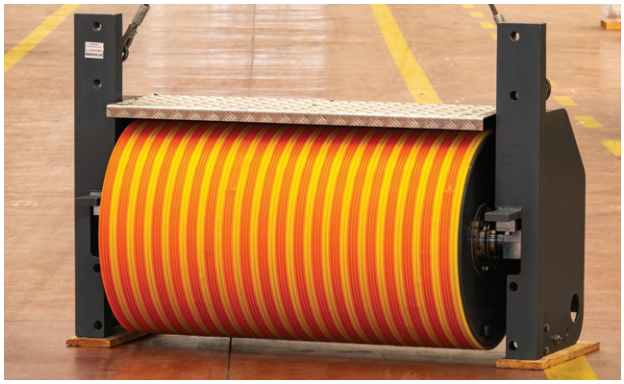
每个支撑轮的位置都在传感器下监控。

该系统中，在每个工作阶段，每根单根钻石索锯不论电压和位移方面，参数随被加工材料的变化而变化，都由中控的管理软件控制从而优化切割，在成本和机器线系统的可靠性上都取得了卓越的效果。

THE SECRET OF A QUICK AND PRECISE CUTTING

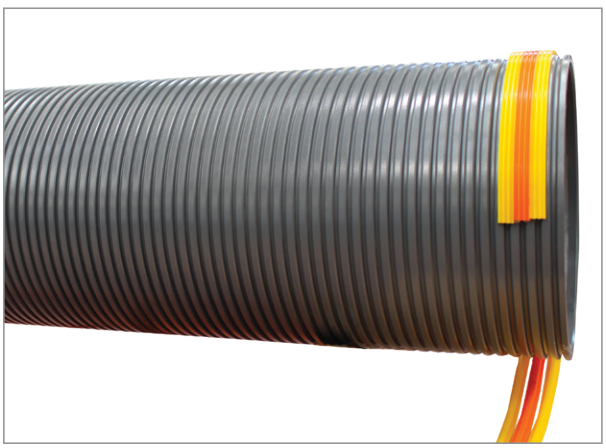
快速及精准切割的秘密





INTERCHANGEABILITY
可交换性

Compared to the other machines on the market, one of the winning features of the GMW is certainly the ease of maintenance, which also includes the replacement of the liners inside which the wires run.
Gaspari has studied a solution that allows you to change the polyurethane gaskets in a very short time and with minimal costs. These are strips, on which the single-groove profile is made, placed side by side and fixed on the flywheels (motor drum, tension pulleys, idle flywheels and wire guiding-drum) by pressure fitting according to a suitable design. The
flywheel has an outer casing with a series of seats in which the lower profiles of the polyurethane bands are elastically anchored. This solution allows you to easily and quickly replace worn bands without having to disassemble any component of the machine. The possibility of replacing even a single band significantly reduces the maintenance costs of the GMW.



与市场上的其他机器相比，GMW多条钻石索锯机的一大优势绝对是易于维护，这也包括更换提供导引钻石索锯方向的胶质衬垫。

Gaspari 嘎斯巴利研究了一种有效解决方案，可以让您在很短暂的时间内以最小的成本就能更换胶衬条带。这些胶条带，在制作时上面呈现一个单槽轮廓，把胶条带并排好，根据已经完善的设计，加些压力，就可挤进固定在飞轮（电机滚筒、张紧轮、惰轮和导钻石索锯滚筒）上。这飞轮有个外壳，外壳上有一系列的承受座，具弹性胶衬条带轮廓的下缘，能被牢牢地固定在承受座里面。这种解决方案让您能够轻松、快速地更换磨损的胶条皮带，即便只单独更换单个胶条也变的是可行的，而无需拆卸机器的任何部件，大大降低了维修时间及费用。

GASPARI MENOTTI SOLUTION: GMW ADOPTS A QUICK GUIDING LINERS REPLACEMENT SYSTEM

嘎斯巴利 Gaspari Menotti 解决方式: GMW 索锯机采用导向胶衬快速更换系统

THE SOFTWARE: DESIGNED TO SERVE THE OPERATOR

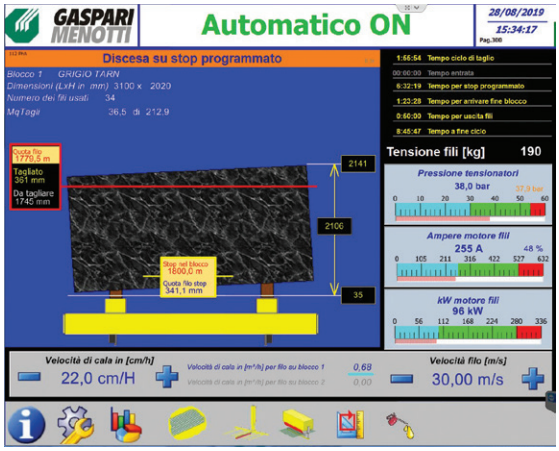
软件: 专为操作人员设计

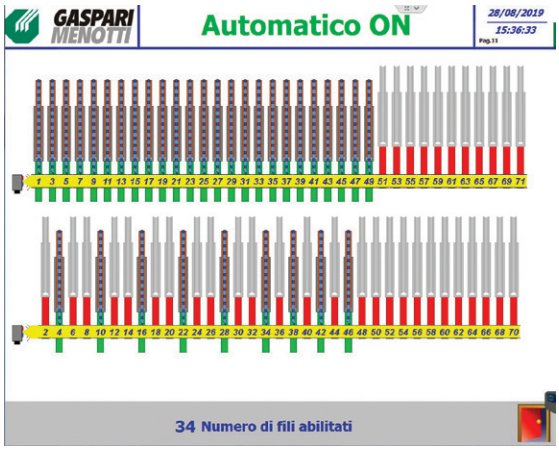
Gaspari has always conceived technology as a useful tool to make available to the customer a huge number of features and potential of the machine, making sure that everything is simple and immediate.
The GMW management software is a concentrate of this philosophy.
The wealth of working parameters under the operator's direct control is truly impressive, as is the ease with which these parameters can be modified and set both in terms of immediacy and simplicity of the operation through a "touch screen" video system, and also in terms of intuitiveness of the graphics and the logic of "shifting" from one feature to another.

Gaspari嘎斯巴利一直将技术视为一种务实有效用的工具，为客户提供机器的大量功能和潜力，确保一切都是简单而直接的。

GMW多条钻石索锯机管理软件是这一理念的集中体现。

在操作员的直接控制下，丰富的工作参数真的令人印象深刻，这些参数可以通过“触摸屏”视频系统在操作的即时性和简单性方面，以及在图形的直观性和“转换” 一个特定图形转到另一个特定图形的逻辑性方面进行修改和设置的容易程度也是令人印象深刻的。





TECHNOLOGY
技术

Main functions and features

- **Remarkable intuitiveness and immediacy**
  The display with simplified icons and the passage from one function to another using a “touch screen” system allows a great ease of understanding of the functions and an incredible simplicity of use.

- **Machine parameters management**
  All the parameters and data necessary for correct cutting management are continuously monitored and modified by the operator.

- **Alarm management and diagnostics**
  Through a series of sensors and a dedicated software module, all the main functions of the machine are continuously controlled and monitored on video so as to make the processing safe and diagnose problems simple and immediate.

- **Statistics management**
  It is possible to collect and store a considerable amount of information regarding the materials being processed, the production carried out, energy consumption and set speeds, both for statistical purposes of controlling costs, and for being able to create an historical archive continuously updated by the system, which records the optimal cutting parameters for each material. The archive facilitates the use of the machine allowing a standardization of the processes and maximizing the performance of the GMW.

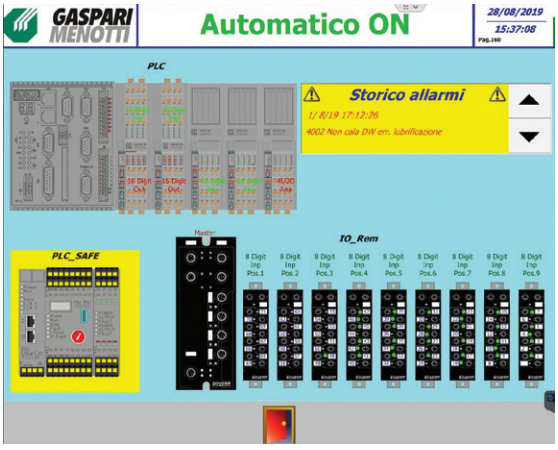
主要特征

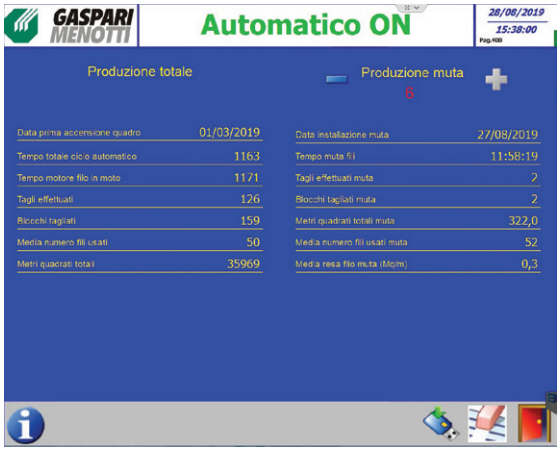
- **卓越的直观性和即时性**
  带有简化图标的显示屏和使用“触摸屏”系统从一个功能到另一个功能的通路，使人们很容易理解这些功能，并且使用起来非常简单。

- **机器参数管理**
  操作员持续监控和修改正确切割管理所需的所有参数和数据。

- **警报管理和诊断**
  通过一系列的传感器和专用的软件模块，对机器的所有主要功能进行连续的控制和视频监控，使加工过程安全，故障诊断简单快捷。

- **统计管理**
  可以收集和存储大量有关正在加工的材料、进行的生产、能耗和设定速度的信息，这既可以用于控制成本的统计目的，也可以用于创建由系统不断更新的历史档案，记录最佳切削
  每种材料的参数。存档方便了机器的使用，允许过程的标准化和GMW多条钻石索锯机性能的最大化。



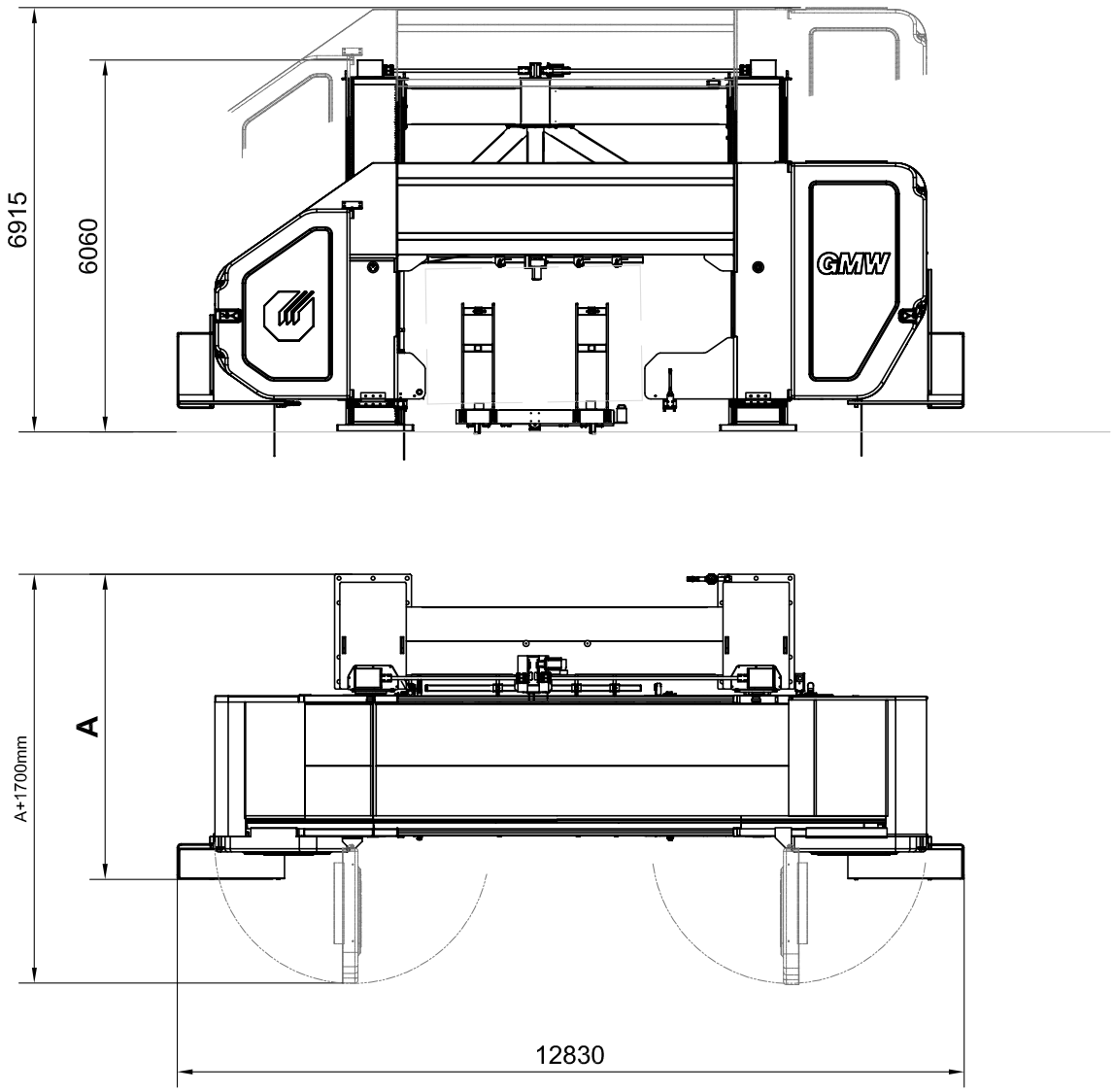


		WIRE DIAMETER 7,3 mm / 索锯串珠直径 7,3 mm毫米				
GMW MULTIWIRE FOR GRANITE GMW花岗岩多条索锯机		**GMW 700**	**GMW 1000**	**GMW 1200**	**GMW 1500**	**GMW 2000**
Useful cutting length / 有效切削长度	mm毫米	3500	3500	3500	3500	3500
Useful cutting height /有效切削高度	mm毫米	2200	2200	2200	2200	2200
Useful cutting width /有效切割宽度	mm毫米	677	968	1142	1491	1957
Maximum number of wires / 最大钻石索锯数量	nr.	24	34	40	52	68
Max. power of the main motor / 钻石索锯	kW千瓦	110	160	160	200	250
Total installed power /总装机功率	kW千瓦	125	175	175	220	270
Wires rim speed /钻石索锯外圈线速度	m/sec米/秒	20-35	20-35	20-35	20-35	20-35
Rising speed /上升速度	mm毫米	300	300	300	300	300
Wires tensioning / 钻石索锯张紧		Proportional Hydraulic / 比例液压				

		DIAMETRO DEL FILO / 索锯串珠直径 6,3 mm毫米					
GMW MULTIWIRE FOR GRANITE GMW花岗岩多条索锯机		**GMW 700**	**GMW 1000**	**GMW 1200**	**GMW 1500**	**GMW 2000**	**GMW 2300**
Useful cutting length / 有效切削长度	mm毫米	3500	3500	3500	3500	3500	3500
Useful cutting height /有效切削高度	mm毫米	2200	2200	2200	2200	2200	2200
Useful cutting width /有效切割宽度	mm毫米	648	927	1094	1429	1959	2210
Maximum number of wires / 最大钻石索锯数量	nr.	24	34	40	52	71	80
Max. power of the main motor / 钻石索锯	kW千瓦	110	160	160	200	250	280
Total installed power /总装机功率	kW千瓦	125	175	175	220	270	300
Wires rim speed /钻石索锯外圈线速度	m/sec米/秒	20-35	20-35	20-35	20-35	20-35	20-35
Rising speed /上升速度	mm毫米	300	300	300	300	300	300
Wires tensioning / 钻石索锯张紧		Proportional Hydraulic / 比例液压					

		DIAMETRO DEL FILO / 索锯串珠直径 5,3 mm毫米					
GMW MULTIWIRE FOR GRANITE GMW花岗岩多条索锯机		**GMW 700**	**GMW 1000**	**GMW 1200**	**GMW 1500**	**GMW 2000**	**GMW 2300**
Useful cutting length / 有效切削长度	mm毫米	3500	3500	3500	3500	3500	3500
Useful cutting height /有效切削高度	mm毫米	2200	2200	2200	2200	2200	2200
Useful cutting width /有效切割宽度	mm毫米	627	897	1059	1491	1950	2246
Maximum number of wires / 最大钻石索锯数量	nr.	24	34	40	56	73	84
Max. power of the main motor / 钻石索锯	kW千瓦	110	160	160	200	250	280
Total installed power /总装机功率	kW千瓦	125	175	175	220	270	300
Wires rim speed /钻石索锯外圈线速度	m/sec米/秒	20-35	20-35	20-35	20-35	20-35	20-35
Rising speed /上升速度	mm毫米	300	300	300	300	300	300
Wires tensioning / 钻石索锯张紧		Proportional Hydraulic / 比例液压					

		WIRE DIAMETER 5,3 mm / 索锯串珠直径 5,3 mm毫米			
GMW MULTIWIRE FOR GRANITE AND MARBLE GMW花岗岩和大理石多条索锯机		**GMW 1000**	**GMW 1200**	**GMW 2000**	**GMW 2300**
Useful cutting length / 有效切削长度	mm	3600	3600	3600	3600
Useful cutting height /有效切削高度	mm	2200	2200	2200	2200
Useful cutting width /有效切割宽度	mm	897	1059	1950	2246
Maximum number of wires / 最大钻石索锯数量	nr.	34	40	73	84
Max. power of the main motor / 钻石索锯	kW	200	200	315	355
Total installed power /总装机功率	kW	215	215	335	375
Wires rim speed /钻石索锯外圈线速度	m/sec	25-35	25-35	25-35	25-35
Rising speed /上升速度	mm	300	300	300	300
Wires tensioning / 钻石索锯张紧		Proportional Hydraulic / 比例液压			



MACHINE MEASURES 机器尺寸		GMW 700	GMW 1000	GMW 1200	GMW 1500	GMW 2000	GMW 2300
Machine width (A) 机器宽度（A）	mm毫米	3740	4200	4200	4650	5100	5420
Machine width with open door 开门机器宽度	mm毫米	3740 + 1700	4200 + 1700	4200 + 1700	4650 + 1700	5100 + 1700	5420 + 1700
Machine length 机器长度	mm毫米	12830	12830	12830	12830	12830	12830
Min. machine height 机器最小高度	mm毫米	6060	6060	6060	6060	6060	6060
Max machine height 机器最大高度	mm毫米	6915	6915	6915	6915	6915	6915

GMT_Multiwire_GMW_EngChi_12/23

GASPARI MENOTTI TECHNOLOGIES SRL
Operation/Project financed under the POR FESR Toscana 2014-2020
POR FESR Toscana 2014-2020 项下供资的业务/项目

Le ali alle tue idee

POR CreO
Unione Europea
Fondo Europeo di Sviluppo Regionale
REPUBBLICA ITALIANA
Regione Toscana

GASPARI MENOTTI
PRESTIGE ADVANTAGE

Gaspari Menotti Technologies S.r.l.
Via Lottizzazione, 25
54100 Massa (MS) - Italia
Tel: +39 0585 64551 - Fax: +39 0585 645555
gaspari@gasparimenotti.com
customerservice@gasparimenotti.com

www.gasparimenotti.com