DONATONI K2 Q
DONATONI K3 Q

CNC MILLING-WORK CENTER

DONATONI
Stone Tech Creators

To highlight a machine and its potential often means to open the doors to new opportunities and markets

CONTENTS

THE HIGHLY FLEXIBLE SOLUTION

MILLING CUTTER-CONTOURING MACHINE

DONATONI K2 Q / K3 Q is a **5/6 axis interpolated milling/work center machine** with automatic tool change. It is available in the version with a **Z axis stroke of 600 mm** or with a **Z axis stroke of 800 mm**.

It is one of a kind machine as it combines the typical features of a milling cutter and those of a work center/contouring machine. The **Parametrix software** and the **wooden overbench**, allow to perform cutting operations as a traditional milling cutter; the **DONATONI K2 Q / K3 Q** range, compared to the traditional working centers, is the sole solution offering specific software for simple and intuitive cutting. Without the overbench, the machine can be set up as a work center to process the piece directly on the aluminum bench or as a contouring machine,

fixing the piece to the bench with the suctions cups kit supplied with the machine. The machine allows to produce items with extremely precise finishing, thanks to the sliding system of X and Y axes on linear guides and racks both in oil bath lubrication. The motion is given by brushless motors coupled to high precision gearboxes. It is equipped with a series of electro-spindles controlled by inverter and it can be fitted with ISO 40 type connection diamond tools, such as end mill, milling wheel and a horizontal blade.
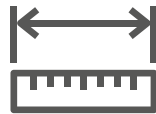
DONATONI K2 Q / K3 Q is featured as a millling cutter and a work / contouring center, it is particularly suitable for all laboratories that want to increase their technological level in limited spaces.

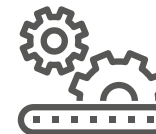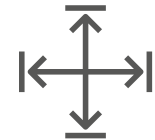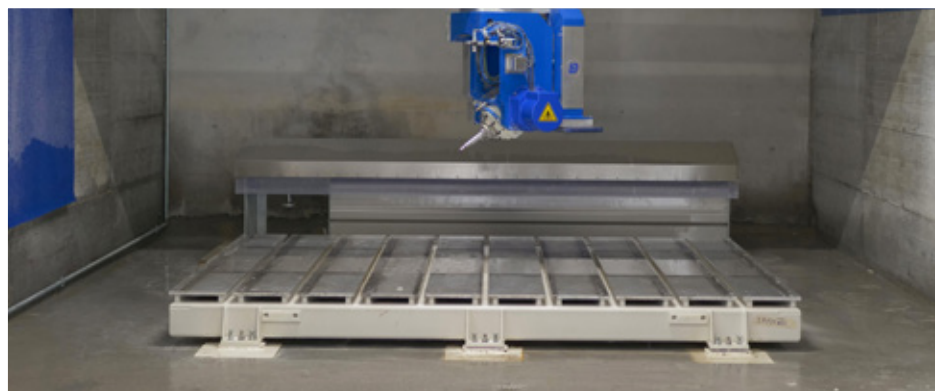|						
POWERFUL AND FLEXIBLE	**2 IN 1**	**PRECISE FOR A PERFECT RESULT**	**SIMPLE AND QUICK TO PROGRAM**	**WIDE RANGE OF SOLUTIONS**	**WIDE RANGE OF PROCESSES**	**REDUCED DIMENSIONS**

MAXIMIZE PRODUCTION, REDUCE SIZE

UNCOMPROMISING FINISHES

PROCESSING

Columns, sinks, kitchen tops, top sinks, floors, panels for exterior and interior claddings, stair steps, window frames, shower trays, tables, fountains, capitals, sculptures, building products, products for funerary art.
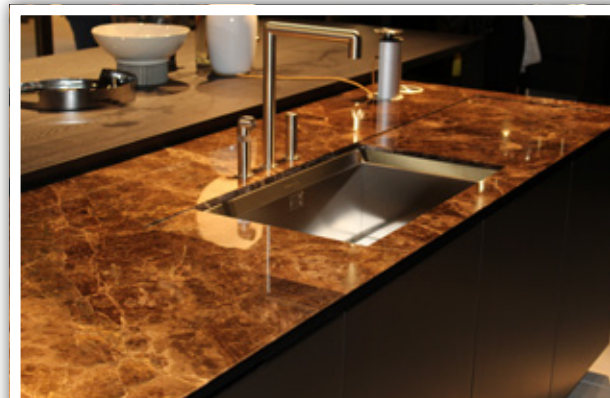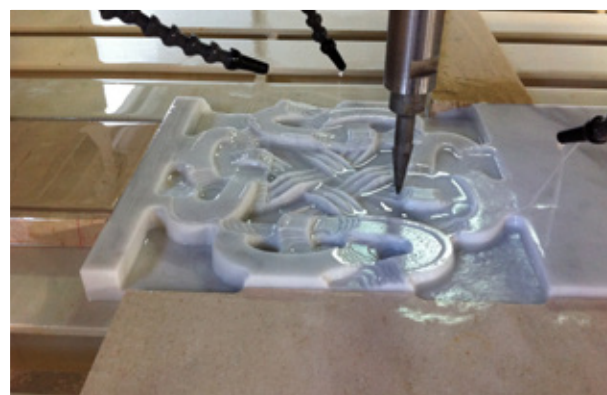
PERFECT BALANCE
BETWEEN POWER
AND FLEXIBILITY

MAIN FEATURES

/ **5/6 INTERPOLATED AXES**

/ **Z-AXIS STROKE: 600-800 MM**
23,6-31,5 IN

/ **DIAMETER MIN / MAX DISKS**
DONATONI K2 Q: 350-625 MM (725 MM OPTIONAL)
13,8-24,6 IN (28,5 OPTIONAL)

/ **DIAMETER MIN / MAX DISKS**
DONATONI K3 Q: 350 -725 MM (825 MM OPTIONAL)
13,8-28,5 IN (32,5 OPTIONAL)

/ **MAXIMUM CUTTING DEPTH**
DONATONI K2 Q: 200 MM (250 MM OPTIONAL)
7,9 IN (9,8 OPTIONAL)

/ **MAXIMUM CUTTING DEPTH**
DONATONI K3 Q: 250 MM (300 MM OPTIONAL)
9,8 IN (11,8 OPTIONAL)

/ **ISO-40 TOOL CONNECTION**

/ **SHAPING AND COUNTORING MACHINE**

/ **SLIDING GUIDES LUBRICATION IN OIL BATH**

/ **NORMALIZED, SANDBLASTED**
AND PAINTED STEEL STRUCTURE

/ **BRUSHLESS MOTORS AND HIGH-PRECISION GEARBOXES**
CONTROLLED BY INVERTER FOR X-Y-Z AXIS SLIDING

TYPES OF WORKING

STRAIGHT, CONCAVE, CONVEX, ARCHED, ELLIPTICAL SHAPES

EXCAVATION OF TWO-DIMENSIONAL AND THREE-DIMENSIONAL SECTION BLOCKS

CONTOURING

POLISHING

ENGRAVINGS

DRILLINGS

LONGITUDINAL CUTS

CROSS CUTS

OBLIQUE CUTS

INCLINED CUTS 0-90°

ORTHOGONAL CUTS UP TO 250MM

ELLIPTICAL AND CIRCULAR CUTS

# INNOVATION IS STANDARD

MAIN COMPONENTS

Electro-spindles with liquid cooling system, from kW 22 / S6, with adjustment of the nr. of revolutions, ISO 40 spindle connection, with automatic tool change, head rotating -5 ° + 545 ° and inclinable from 0° to 90 °, mounted on steel carriage.

Control consolle on double-jointed on swing arm, manual controls, video 21 "color touch-screen, keyboard and usb port for importing files.

Ball recirculating sliding crosspieces and helical toothed racks for sliding the Y axis, with oil bath lubrication and protected by bellows with labyrinth closure.
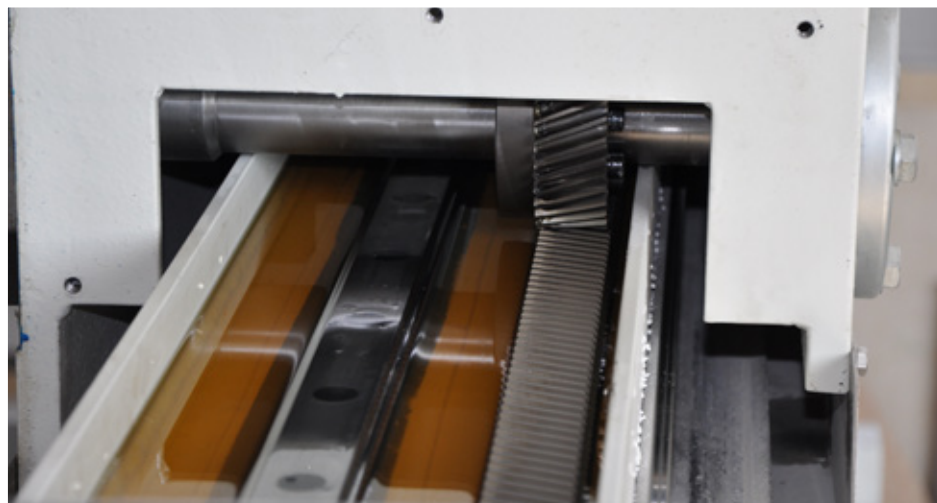

Linear tool storage at 20 positions for ISO 40 cones with max. length 600 mm, complete with pneumatic- lifting stainless steel cover (only for ATC or MTB electrospindle).

Fixed workbench with alluminium top of 3500 x 2000 mm (137,8 x 78,7 in) for the mechanical fixing of the suction cups. Overbench: essential for cutting and shaping operations.

Overbench with wooden top allows cutting and shaping operations.
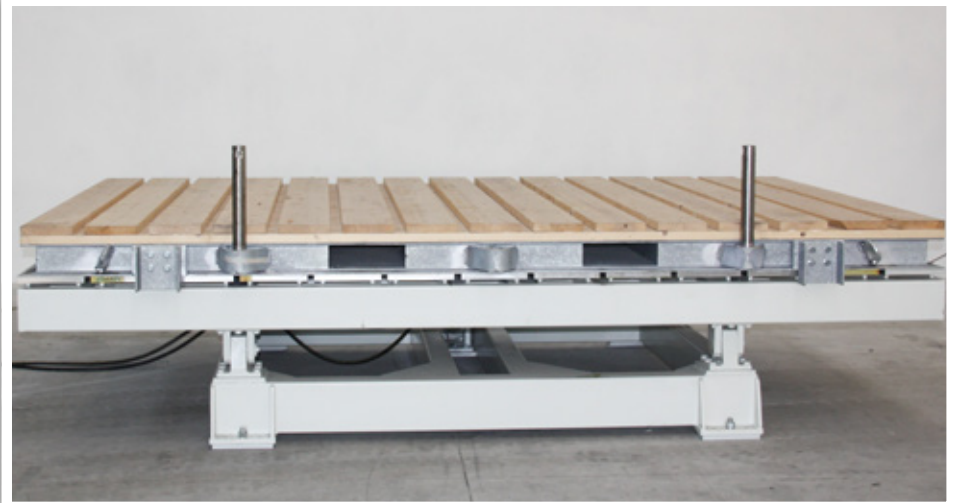
Slab detector: system for automatic detection of slab thickness.

Handheld terminal which is connected to the control board.
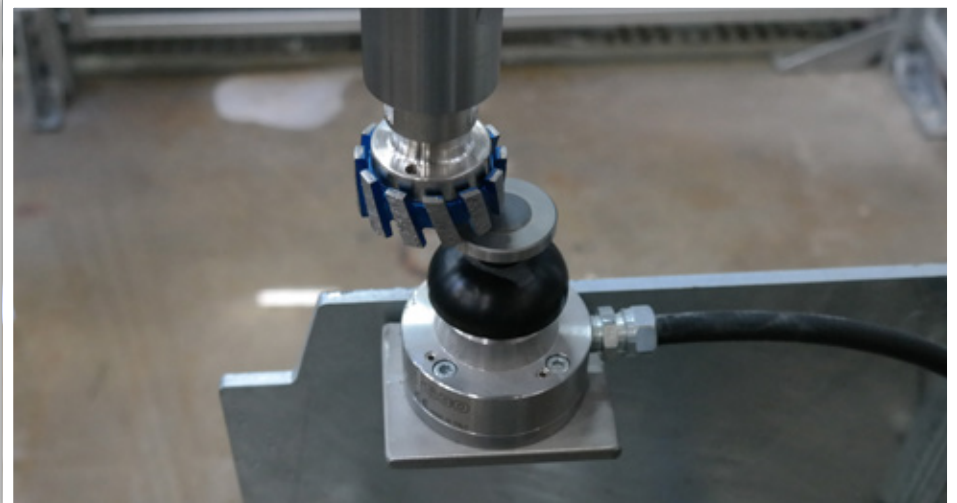
Suction Cups Kit system for fixing the pieces by means of suction cups and vacuum pump (to be combined with fixed or tilting aluminum bench).

Electric panel cooled by air conditioner to keep the temperature.

Tool presetting: tool thickness detector, essential for precise processing.

ACCESSORIES AND MECHANICAL COMPONENTS

OPTIONALS

Move-System: Suction cups system for the automatic lifting and positioning of cut-to-size pieces granting processing times with minimum waste. The 2 aluminum suction cups are equipped with sectors of various sizes allowing lifting operation of large and small pieces, up to a maximum of 600 kg (1322,7 lb). It can be used with blade up to 625 or 725 mm (24,6 or 28,5 in) diameter.

Tilting workbench with alluminium top: of 3500 x 2000 mm (137,8 x 78,7 in) for the mechanical fixing of the suction cups. Equipped with a hydraulic lifting system from 0 to 80 degrees. Weight max. of the slab 1800 Kg (3968,3 lb).

Lathe fixed 500 / 850: allowing to perform columns with circular section or with complex shapes.

Retaining walls: in sandblasted steel and painted with triple layer.

Automatic blade change: 400 mm (15,7 in) blade diameter with ISO 40 cone.

DONATONI K3+TWN

DONATONI K3+TWN is a **5/6 interpolated axes numeric control milling/work center machine** with **Z axis stroke 800 mm** (31,5 in) and maximum power of **22 kW/S6**.

It is a machine equipped with a fixed aluminum bench suitable for shaping, contouring, polishing, engravings and bas-reliefs and a tilting wooden bench with Twin System for slabs cutting. This system allows moving the upper bench from the loading / unloading area to the cutting area and vice versa.

Wheels with locking system that avoids any displacement of the bench.

Z axis stroke:
800 mm (31,5 in)

BENCH 2

L: 11320 mm

MAIN FEATURES

/ 5/6 INTERPOLATED AXES

/ Z-AXIS STROKE: 800 MM (31,5 IN)

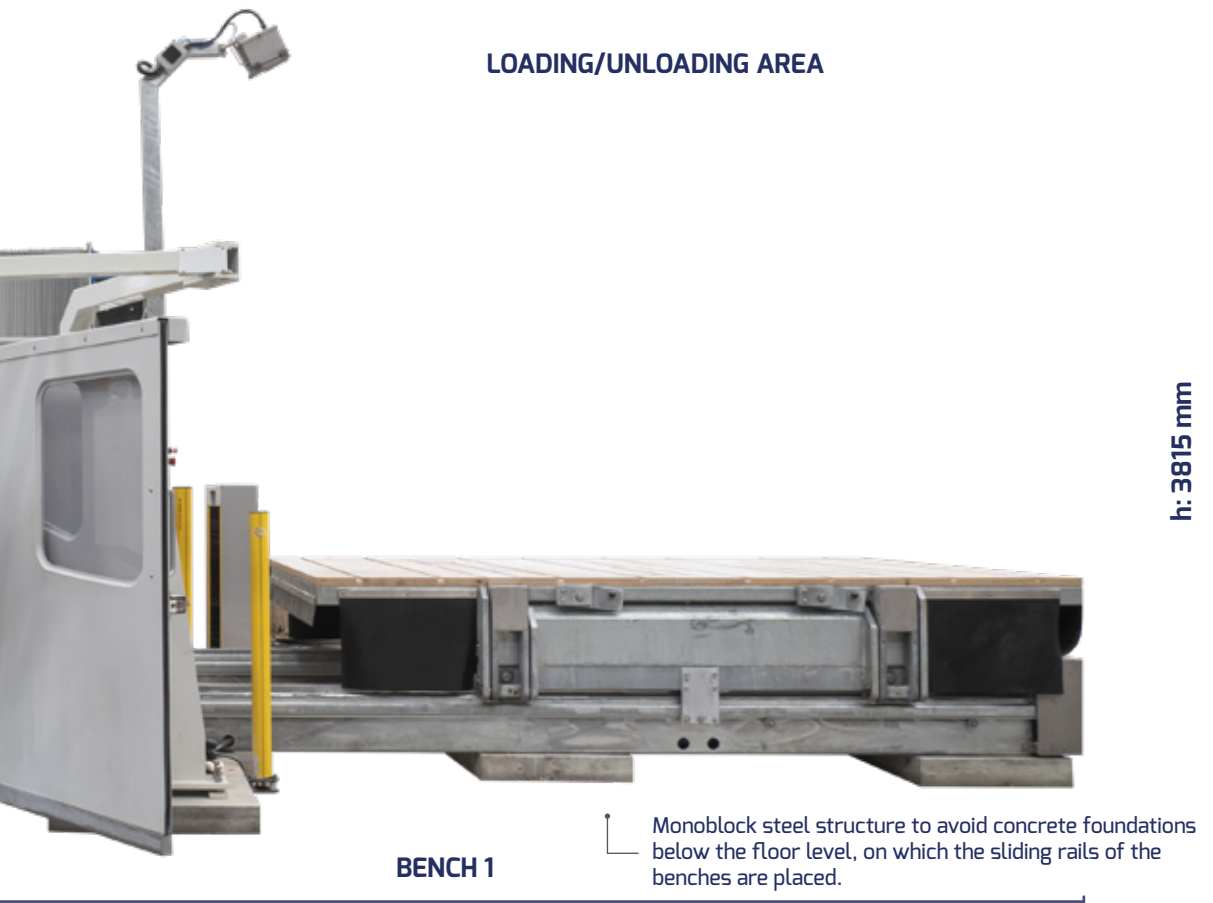**/ DIAMETER MIN / MAX DISKS: 350-625 MM (725 MM OPTIONAL) 13,8-24,6 IN (28,5 OPTIONAL)**

/ TOOLS ELECTROSPINDLE POWER 22 KW / S6

/ SUCTION HANDLING SYSTEM

/ MAXIMUM LIFTING WEIGHT WITH SUCTION CUPS: 600 KG (1322,7 LB)

/ OIL BATH SLIDING GUIDES LUBRICATION

/ BRUSHLESS MOTORS AND HIGH-PRECISION GEARBOXES CONTROLLED BY INVERTER FOR X-Y-Z AXIS SLIDING

LOADING/UNLOADING AREA

h: 3815 mm

Monoblock steel structure to avoid concrete foundations below the floor level, on which the sliding rails of the benches are placed.

BENCH 1

Tilting benches with wood or rubber surface (at customer's choice) with hydraulic lifting system and capacity up to 1650 kg (3637,6 lb).

TECHNICAL DATA

Maximum disk	mm in	625 24,6	Loading capacity with tilting system	Kg lb	1650 3637,6
Axis Z	mm in	800 31,5	Useful space between the two counters	mm in	300 11,8
Axis X	mm in	3900 153,5	Bench 2	mm in	3500 x 1800 x H 450 137,7 x 70,8 x 17,7
Max cutting thickness with blade (⌀625 mm - 24,6 in) (⌀725 mm - 28,5 in opt)	mm/in	200/7,9 235/9,2	Bench 1	mm in	3800 x 2400 x H 891 149,6 x 94,4 x 35
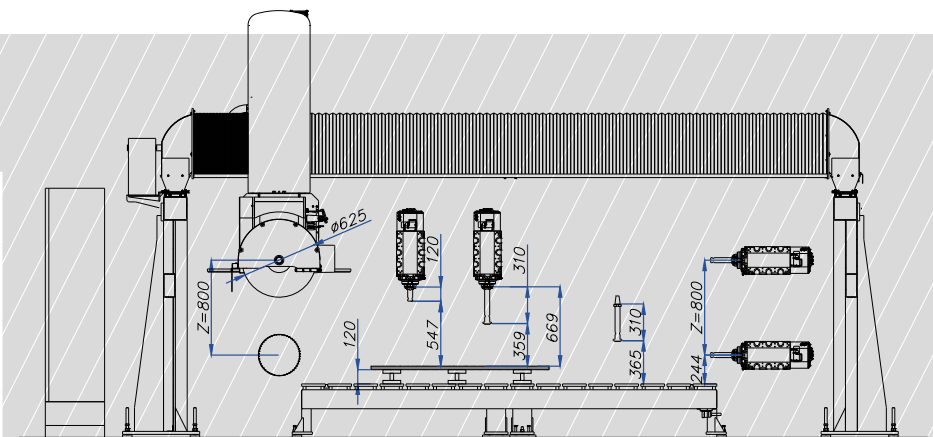
AN INTELLIGENT SYSTEM TO MAKE YOUR WORK EASIER

LET US GUIDE YOU TOWARDS THE FUTURE OF INTELLIGENT MACHINES

D-INSIDE:

EQUIP YOURSELVES WITH
A SUPERIOR FORM OF INTELLIGENCE

OPERATOR
INTERFACE WITH
PC AND 21" TOUCH
SCREEN MONITOR

HIGH PERFORMANCE
THANKS TO THE
NEW POWERFUL PC

USB
PORTS FOR
TRANSFERRING
FILES

CONTROLS FOR
THE MANUAL
MOVEMENTS
OF EACH AXIS

MOBILE, STIFF ARM
THAT ALLOWS
THE OPERATOR TO
PROGRAM WITH 1
HAND

Perfect machining can only be achieved through multiple movements that need to be perfect coordinated. Just as all the movements in the human body are managed through brain impulses, similarly, the movements of our machines are managed by **integrating the machine with the programming software.**

Every Donatoni machine is born with an intelligent work management system, integrated with all the parts that manage its movements; we call this system **D-Inside**, the real brain of the machine. It is an advanced interface that is simple to use, even for inexperienced operators, which allows the machine-software system to be coordinated.

The D-Inside system offers many programming options and can be interfaced with the different types of Donatoni software, such as Parametrix and all the additional modules, or with CAD-CAM DDX EasySTONE, so as to customise the machine to meet the customer's requirements.

PARAMETRIX

INCLUDED

Parametrix is the **simple and user-friendly software** developed by Donatoni Macchine and conceived to **optimise the management of cutting different shaped pieces from slabs.**

It is a programme which allows you to manage cutting processes with disks, **it enables input of rectilinear shapes as well as curvilinear shapes** (steps, kitchen work-tops, rectangles, covers) using pre-defined shapes in the programme or imported from DXF files. Depending on the surface available it is possible to automatically set the position of the pieces and the sequence of cuts, optimising the times and reducing material waste.

Included in the software are functions **for anti-collision of pieces, manual and automatic piece nesting, book matching, managing statistics, production and orders, rendering pieces and holes.**

Parametrix can be combined with Photoslab and Move-System, which allow automatic detection of the slab and movement, via a suction cups system, of the cut pieces **reducing operator intervention to a minimum.**
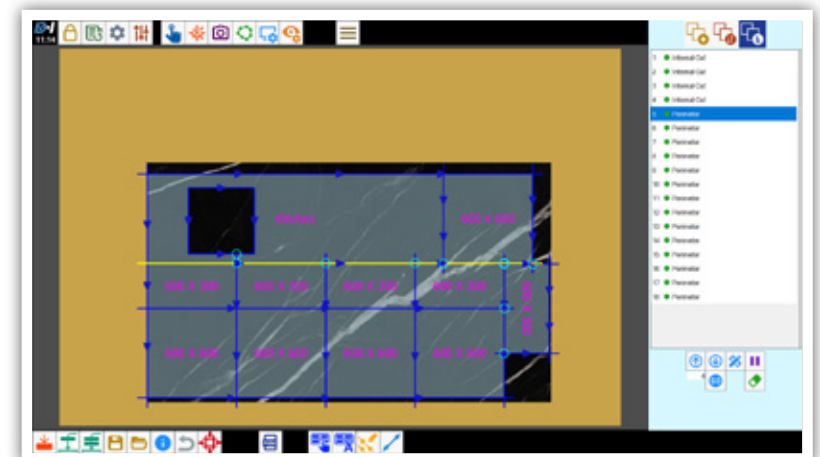
Nesting (included)

Automatically inserts squared or rectangular pieces in the working area optimizing the exploitation of the slab and automatically avoiding highlighted defects.
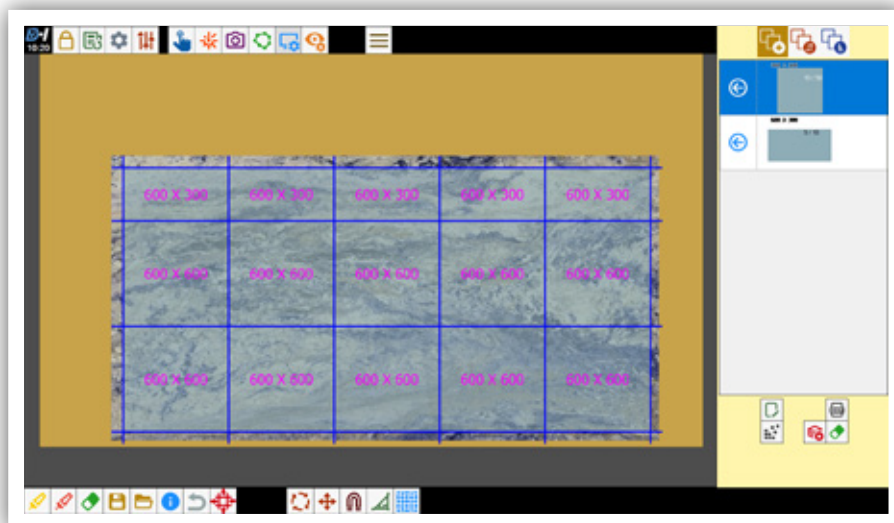
Drilling and processing with milling cutter (included)

It allows you to manage the use of tools, drills and milling cutters, with which it is possible to cut pieces or parts of the slab, to complete the initial processing with blade, such as "L-shaped" internal corners, or to make reductions for recesses. The change from disk to core during processing is automatically managed by the program.
(only for machines version tools, top, mtc, atc, and with tool+ accessory).

Positioning of the pieces on the slab (included)

With the manual nesting program it is possible to preview any collisions between parts so making easier the piece best positioning. The "magnet" function helps the operator to align the pieces one next to the other in order to reduce the number of cuts.

Managing and changing of cuts (included)

After positioning the pieces, cuts can be modified: it is possible lengthen it, to change order of cuts, to disable it, to add pauses; other types of modification before pressing the start button to process the cuts can be made.

Book matching (optional)

Starting from a project in DXF format, it allows to have a 2D image of the parts to be cut and therefore to appreciate before the cut the aesthetic result obtained by the combination of the pieces, evaluating overall and in full the "bookmatching" type processing.

Piece unloading Module (optional)

The program allows to unload the piece in a predefined area; the operator can select on the screen the cut pieces to be unloaded with the Move System of the machine (the software needs the increase of Y axis stroke length).

DM_TL (optional)

Program for slabs smoothing / polishing / brushing by means of plate carrying FRANKFURT abrasives.

PHOTOSLAB

SUPPLIED WITH CAMERA FOR SLAB "OPTIONAL"

By means of a camera placed above the machine and the related record software, the slab being cut is automatically detected.
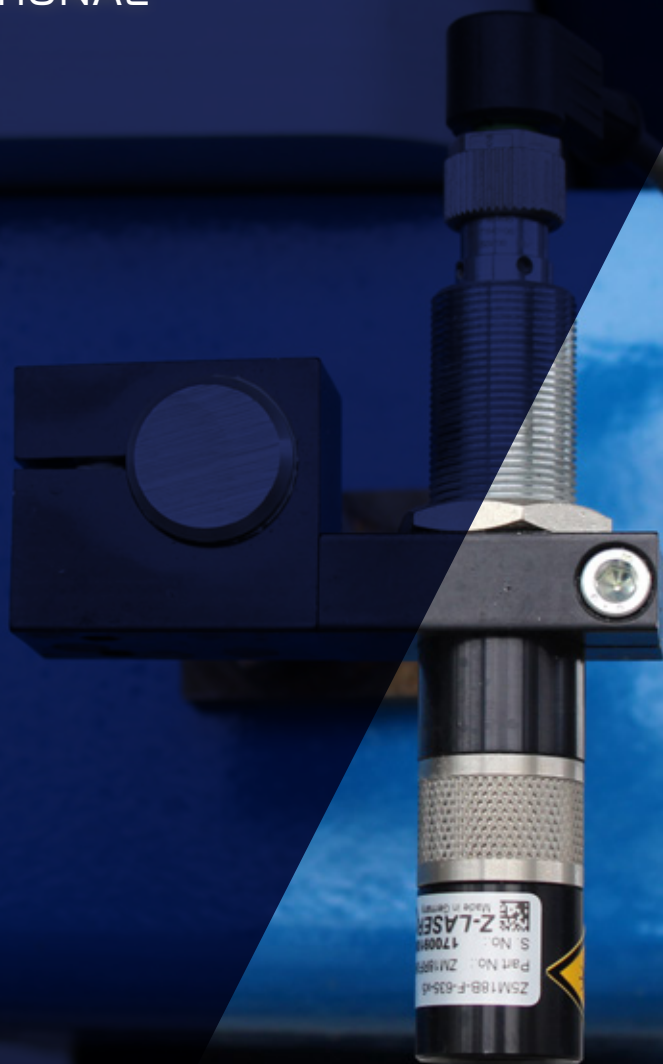
The system allows the optimization and the exploitation of the slab dimensions, the speeding of pieces positioning, avoiding possible defects or enabling to perform cuts by following the veins of the material.

The software is automaticlly enabled with installation of "camera for slabs".
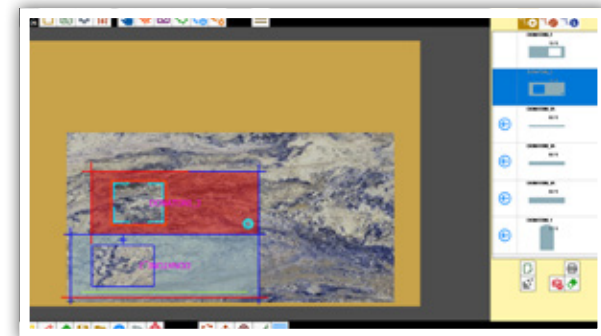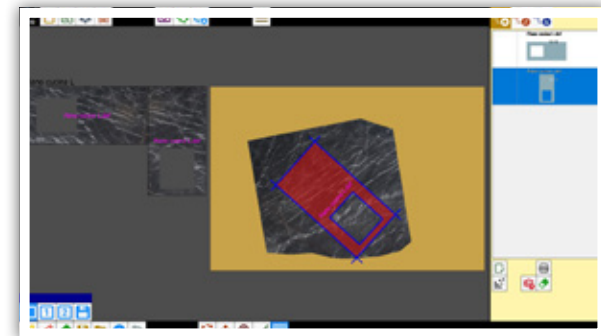
SCAN-CNC

OPTIONAL

Detection system composed of a laser pointer mounted on the machine head, allowing to detect two-dimensional profiles with linear or curvilinear shape. In real time the software creates the drawing (file dxf) on the machine monitor.

Once the detection operation has been completed, the operator can:

· Process the template on the touch screen of the machine using the optional Parametrix or Easycut, Easystone Basic or Premium.

· Store the template file in the machine's PC archive.

· Store the file on an external PC, using a USB key, to create possible processing and association with other files by using external CAD CAM software.
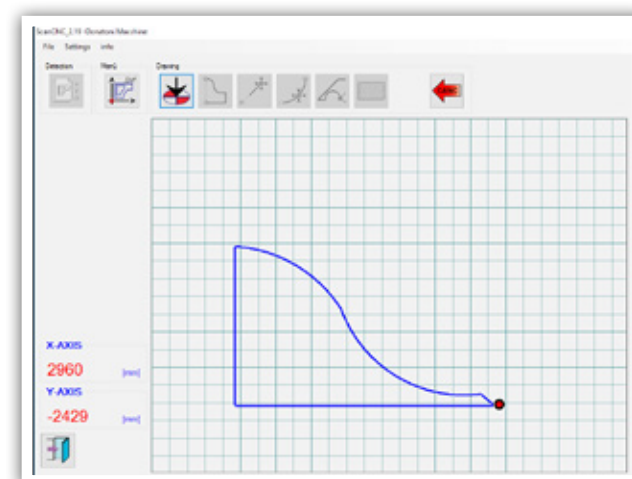
CAD-CAM
OPTIONAL

The software allows to design, import and execute 2D and 3D files in DXF, IGES, STL, PNT, STEP and RHINO formats and to define surfaces and shapes through laser scanning.

Multiple processes can be set: roughing, drilling, profiling, emptying and polishing, which can be carried out by optimizing the execution process.

After the import, the software optimizes processing paths, performs roughing / finishing taking into account the raw material resulting after processing.

With CAD-CAM it is possible to display the processing 3D image with virtual milling and to modify it if required. The 3D simulation of the processing, including free displacements, is realistic as it is based on the Customer's machine model and shows the three-dimensional model of the working center, of the bench, of the motors, the tools, the sub-pieces and the pieces.
Once the design phase is completed, CAD-CAM generates the piece-programs and sends it directly to the Customer's working center.

Finally, it calculates times, lengths and processing costs, allowing accurate reporting of the work performed.
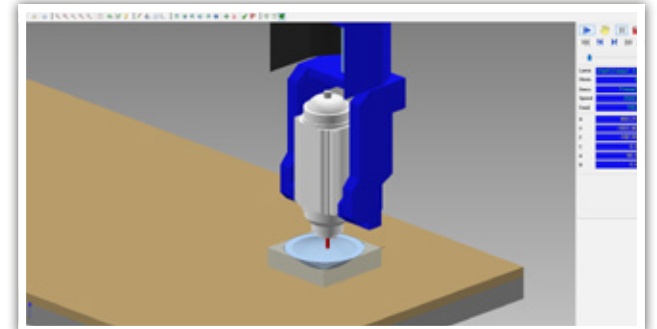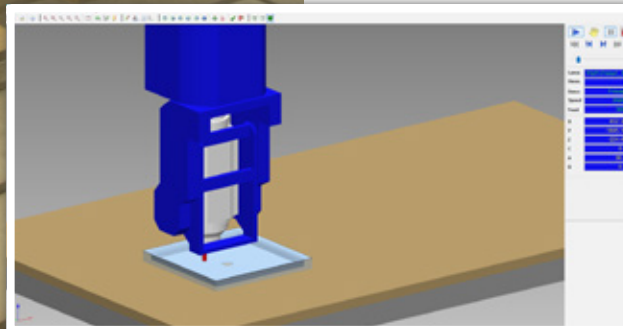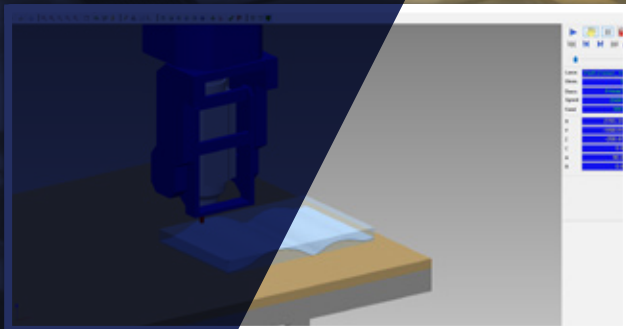
Drawing: the software provides drawing tools allowing to easily create 2D shapes and even complex 3D surfaces. It is also possible to import surfaces produced with other modeling software or coming from from the scanning of real objects.
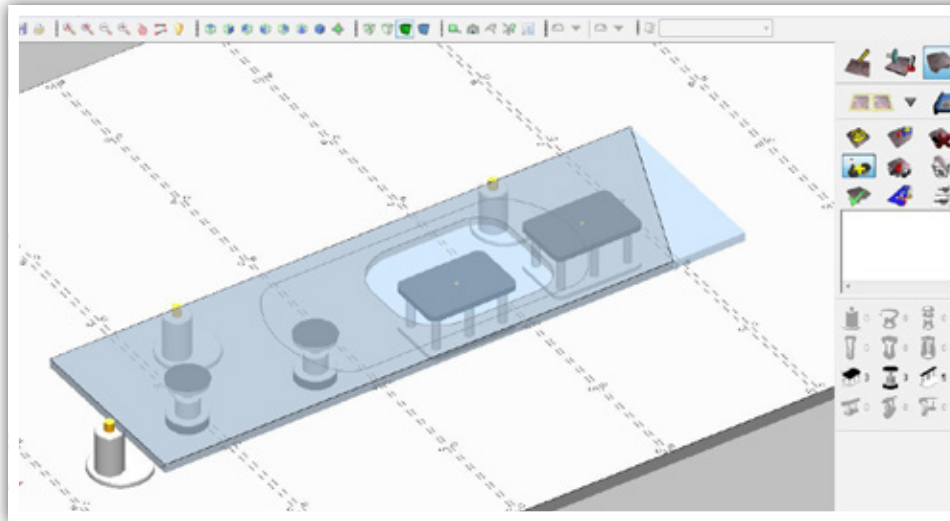

Tool storage management: the software manage tool magazine and creates working kits. This allows to create a database by type of processing, containing all the necessary tool parameters already set, saving time for programming.
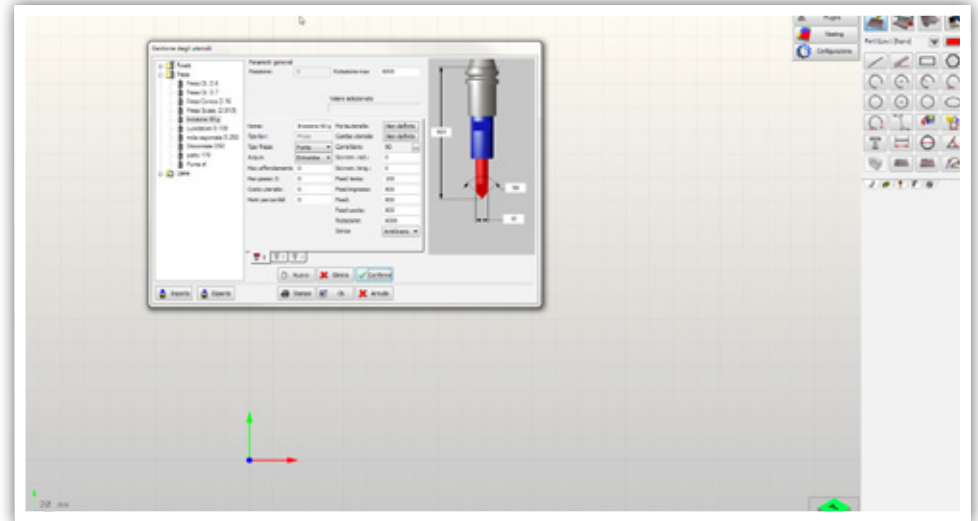
Working management: the project that has to be realized out often requires the use different processes (finishing, roughing ...), which have to be carried out using different tools. The application of these processes is done directly on 3D model and the operator immediately has feedback on the tool paths and uptake so allowing you to deal with the process in the most congenial way.
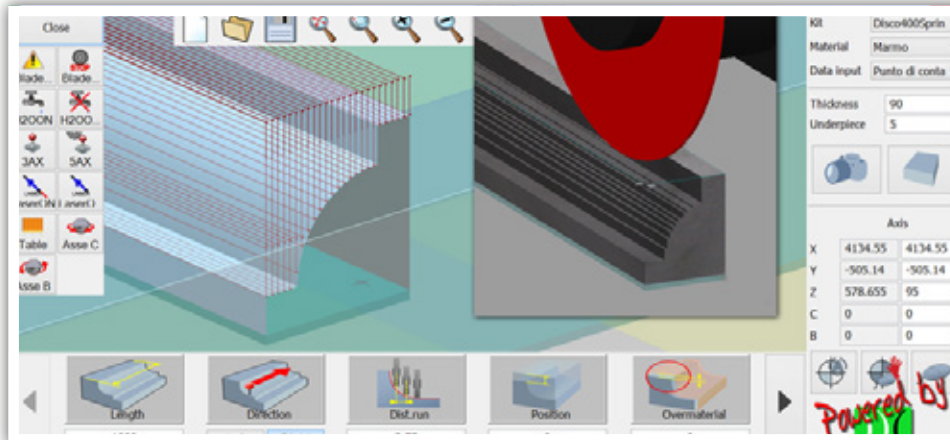
Simulation: the program allows to simulate the operations that will be actually performed by providing a model of the machine, tools and the material processed. In the simulator, during the movement of the tool on the material, it will be possible to display the actual material removal and to have a preview vision of the final result.
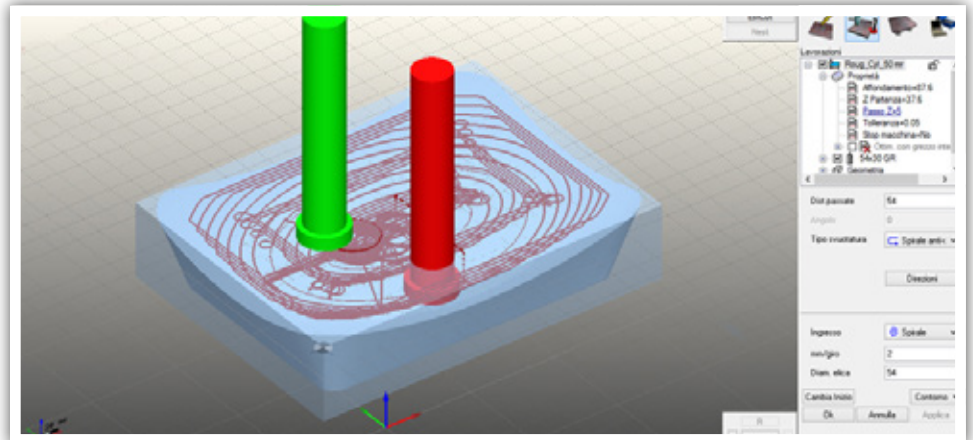
WITH DONATONI YOU ARE NEVER ALONE

AFTERSALES SERVICE AND ASSISTANCE

The relationship with the customer does not end with the supply of the product but continues and is strengthened through a reciprocal collaboration which creates value for both customer and supplier.

DIRECT CONNECTION WITH OUR TECHNICIANS

Donatoni Service is the company department that is totally devoted to our customers and their needs; it provides a wide range of **services aimed at meeting our customers' all-round requirements**, before, during and after the delivery and installation of the machine and throughout its useful life.
Our highly-qualified personnel have sound experience and are capable of responding to any question or request. We use an open approach that is attentive to specific individual needs since our objective is to cooperate with and support the customer in its production activities, not only through assistance but also with **technical services and advice** which allow operators to improve their know-how and enhance their production. Speed, reliability and professionalism are the strengths that allow us to ensure an efficient response to your requests; our Service uses the latest generation communication tools and **a global network of partners** so as to provide prompt answers and solutions.

WORLDWIDE ASSISTANCE STRUCTURE

Donatoni is present in many countries worldwide thanks to a structure of reliable and competent partners and agents, among which the Biesse group Intermac branches.

MACHINE INSTALLATION

Our machine are installed by highly specialized technicians granting extraordinary levels of professional work. Installation includes a careful installation service, commissioning of the machine and training of operators according to the model of machine installed.

ON SITE ASSISTANCE

We provide on site assistance at the clients premises if not possible to use the Tele Assistance by modem.

DIRECT CONNECTION - ON-LINE ASSISTANCE

Each machine is supplied with a system that enables it to be connected by Tele-Assistance to our After-sale service (we require connection to the network via a cable). This service enables our technical staff to virtually access the customer machine and to carry out checks, updates and to provide technical assistance as if they were there at the machine location in person.

PARTS AND REPLACEMENTS SERVICE

We handle requests for parts and replacements in any part of the world, in short time frames in order to minimise machine down-time.

CAD-CAM TECHNICAL ADVICE

we help our customers in creating and designing projects and objects.

THEORETICAL/PRACTICAL TRAINING

Training courses and update courses regarding new applications and software at our offices or at customer premises. Our offices are equipped to host courses for technicians and operators. The rooms are next to the machines on display in our show room and therefore this allows tests and checks to be carried out directly on the console of the machine and the level of learning can be evaluated.

TECHNICAL DATA

5450

7758
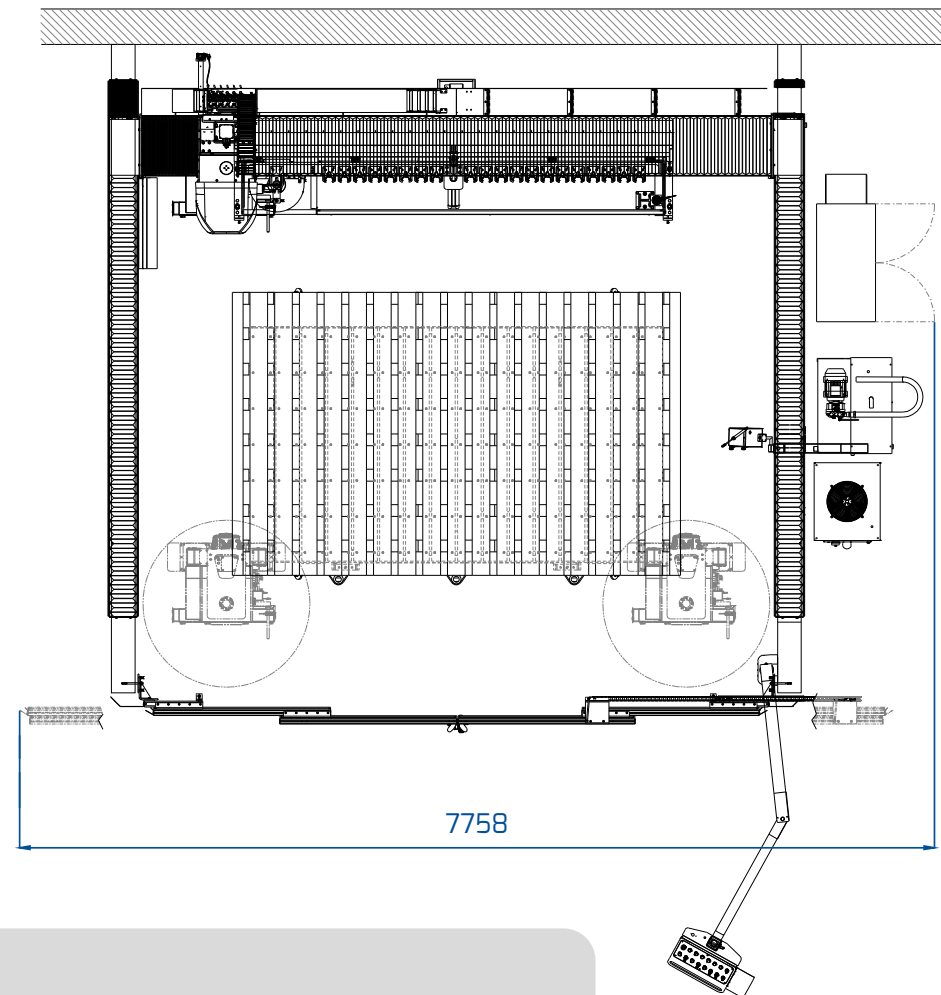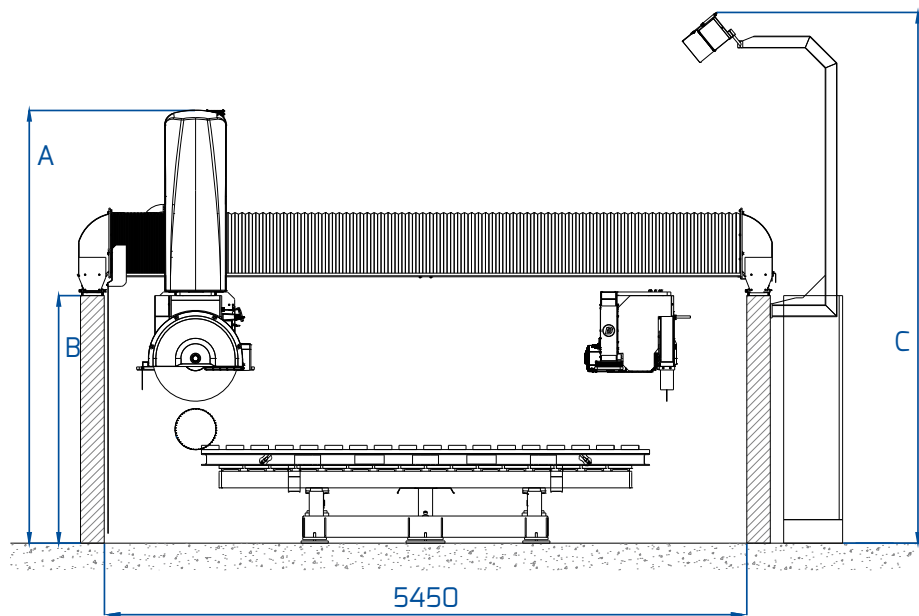
A:
DONATONI K2 Q: 4040 mm
DONATONI K3 Q: 3670 mm

B:
DONATONI K2 Q: 2100 mm
DONATONI K3 Q: 2250 mm

C:
DONATONI K2 Q: 4500 mm
DONATONI K3 Q: 4770 mm

DONATONI K2 Q / K3 Q

		DONATONI K2 Q	DONATONI K3 Q
Max number of interpolated axes	N°	5/6	5/6
Carriage stroke axis X	mm in	3900 153,5	3800 149,6
Bridge stroke axis Y	mm in	3450 135,8	3450 135,8
Vertical stroke of the head axis Z	mm in	600 23,6	800 31,5
Disk head rotation (axis C)	degrees	-5° / +545°	-5° / +545°
Disk head tilting movement (axis A)	degrees	0° / 90°	0° / 90°
Working table dimensions	mm in	2000x3500 78.7 x 137,8 (2400x3800 with Move System) (94,5 x 149,6)	2000x3500 78.7 x 137,8 (2400x3800 con Move System) (94,5 x 149,6)
Minimum disk diameter	mm in	350 13,8	350 13,8
Maximum disk diameter	mm in	625 (725 optional) 24,6 (28,5 optional)	725 (825 optional) 28,5 (32,5 optional)
Max cutting depth	mm in	200 (250 optional) 7,9 (9,8 optional)	250 (300 optional) 9,8 (11,8 optional)
Disk motor power	kW	22 / S6	22 / S6

		DONATONI K2 Q	DONATONI K3 Q
Tools rotation	RPM	0/9000	0/9000
Speed axis X	m / min ft / min	0 – 45 0 – 147,6	0 – 45 0 – 147,6
Speed axis Y	m / min ft / min	0 – 45 0 – 147,6	0 – 45 0 – 147,6
Speed axis Z	m / min ft / min	0 – 6 0 – 19,7	0 – 6 0 – 19,7
Speed of axes X Y	m / min ft / min	0 – 45 0 – 147,6	0 – 45 0 – 147,6
Water consumption	l / min gal / min	50 13,2	50 13,2
Air consumption	l / min gal / min	20 5,2	20 5,2
Standard voltage	Volt / Hz	400 / 50	400 / 50
Max Disk with suction cups	mm in	725 28,5	725 28,5
Total weight max lifting with suction cups	Kg lb	600 1322,7	600 1322,7
Approx total weight of the machine	Kg lb	5500 12125	5700 12566

The technical data and images in this catalog are indicative and do not constitute a constraint. The manufacturer reserves the right to make changes to the product, technical data and images without prior notice.

NOTE

Donatoni Macchine, founded by Vittorio Donatoni in 1959 in Domegliara, one of the main marble and granite processing districts, is recognised, thanks to their years of experience gained in the natural stone industry during this time, as one of the world leaders in manufacturing **cutting-edge machines of very high quality for working stone.**

Constant research, technological innovation and customer service are key concepts for the company and in order to pursue them the company employs highly qualified technical and commercial personnel, in order to guarantee the end customer a **product that reflects their expectations in terms of quality and performance.**

Diamente.it

DONATONI
Stone Tech Creators