

**breton**

Machine Tools

MATRIX 1000



**Flexible High Tech Solutions for Industry**

"Engineered on Your needs"

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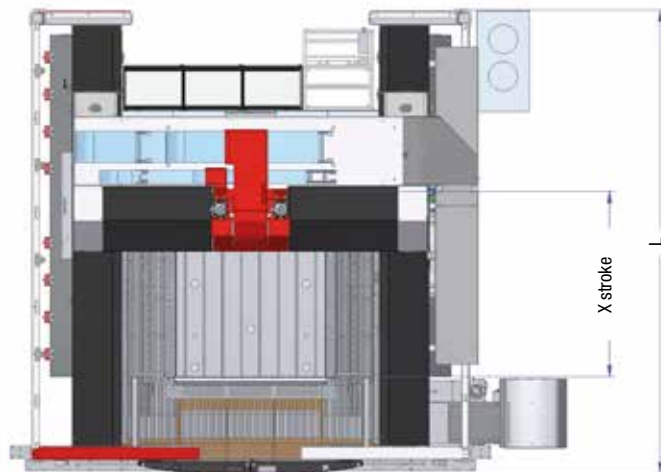
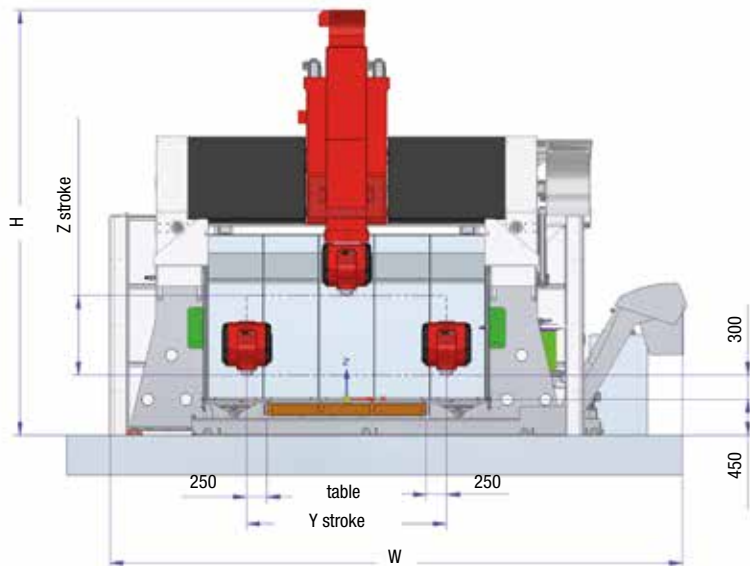


Customized Efficiency

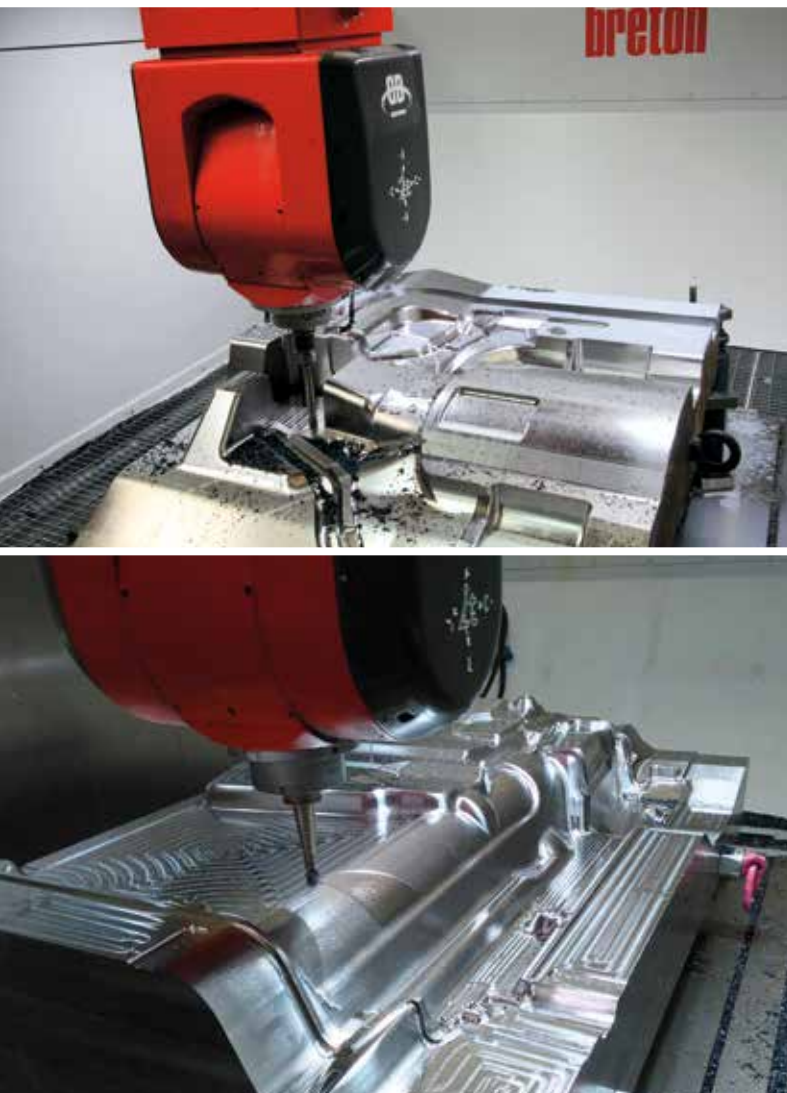


# MATRIX 1000

MATRIX 1000 K 25 / 40							
Interpolated axes		5					
X Stroke	mm in	2.500 - 4.000 98 - 157					
Y Stroke	mm in	2.500 98					
Z Stroke	mm in	1.000 39					
X / Y Axis rapid feedrate	m/min ipm	50 1,969					
Z Axis rapid feedrate	m/min ipm	40 1,575					
A Axis rotation		± 115° - -105° +120°					
C Axis rotation		± 305° - ENDLESS					
A Axis rapid feedrate	rpm	30					
C Axis rapid feedrate	rpm	30					
Spindle power S6 / S1	kW HP	40 / 40 53 / 53	-	41 / 37 55 / 50	-	96 / 70 129 / 94	- 40 / 40 53 / 53
Spindle torque S6 / S1	Nm ft-lb	137 / 100 127 / 73	-	89 / 64 66 / 47	-	94 / 67 69 / 49	- 180 / 150 133 / 111
Spindle speed	rpm	18.000	-	28.000	-	24.000	- 16.000
DIN 69893-1 milling tool taper		HSK-A63 - HSK-A100					
W x H x L (K25)	mm in	7.169 x 5.314 x 6.260 282 x 209 x 246.5					
W x H x L (K40)	mm in	7.169 x 5.314 x 7.960 282 x 209 x 313					







### A COMPETITIVE SOLUTION

High-speed precision machining centre for milling complex three-dimensional work-pieces which require accurate machining and continuous axis interpolation.

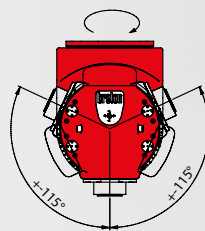
MATRIX is the ideal solution to satisfy production requirements across a multitude of industrial applications from aerospace industry to automotive, die-manufacturing and design.

### OPTIMIZED CONFIGURATION BASED ON CUSTOMERS' NEEDS

You can choose between two different machine length and two head configurations (fork or orthogonal). The machine can be placed directly on the floor (if capable to support enough load) or on a simple foundation to have the working table on the floor plane.

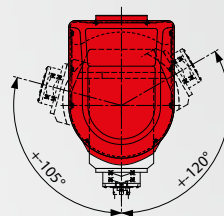
### EASY ACCESS AND PERFECT VISIBILITY

Great accessibility and visibility of the working area thanks to the machine gantry structure with moving bridge and wide frontal doors.



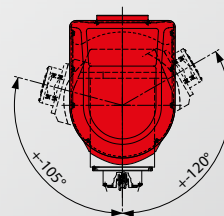
### TYPHOON

kW (S6/S1)	40/40 - 41/37 - 96/70 - 40/40
Nm (S6/S1)	137/100 - 89/64 - 94/67 - 180/150
Rpm	14.000 - 28.000
A axis stroke	± 115°
C axis stroke	± 305°
A axis (rpm)	30
C axis (rpm)	30



### PHOENIX

kW (S6/S1)	41/37
Nm (S6/S1)	89/64
Rpm	28.000
A axis stroke	-105° +120°
C axis stroke	endless
A axis (rpm)	50
C axis (rpm)	100



### TORNADO

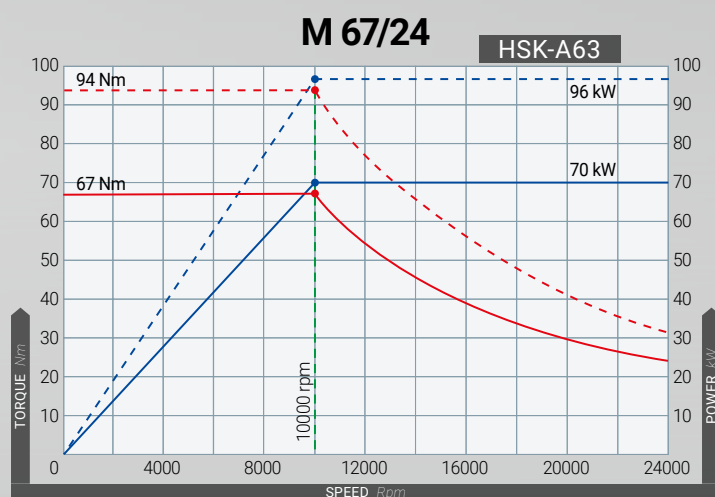
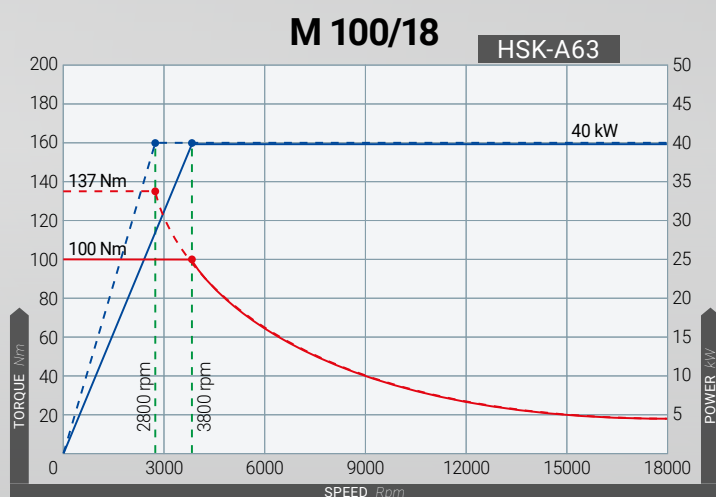
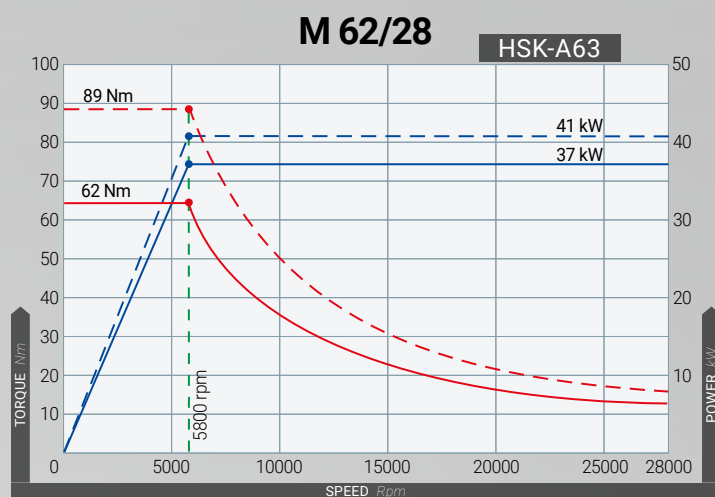
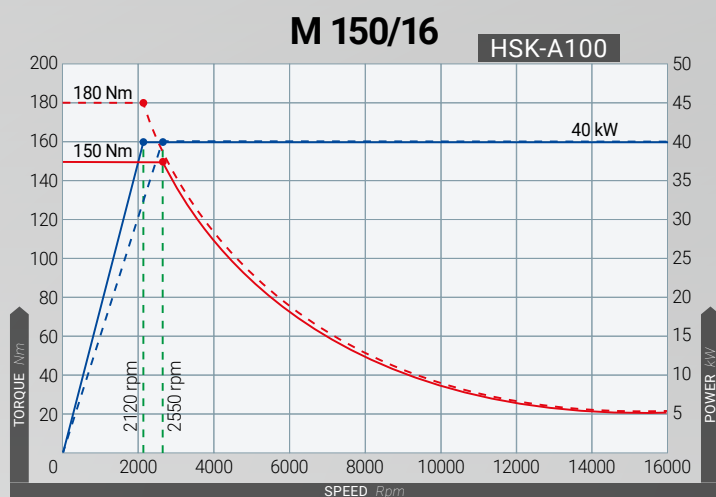
kW (S6/S1)	96/70	40/40
Nm (S6/S1)	94/67	137/100
Rpm	24.000	18.000
A axis stroke	-105° +120°	-105° +120°
C axis stroke	endless	endless
A axis (rpm)	50	50
C axis (rpm)	100	100

### HIGH PRECISION, DYNAMICS AND SPEED WITH 5 CONTINUOUS AXES

The machine structure has been completely redesigned using the more advanced FEM and simulation software achieving a double stiffness respect to the previous model. The structural change has been optimized in order to keep the excellent dynamic performances and the optional hydrostatic Z guides offer the best vibration damping results.

### TWO SUPERIOR HEADS

The customer can choose between two direct drive and high performance heads configuration: the orthogonal head one and the fork one. The first one is particularly appreciated by mould & die makers because it can machine closer to the workpiece or reach points that would otherwise be inaccessible by a forked head. The head is equipped with direct drive, safety brakes and encoders, as well as a case that resists bending and twisting as much as the forked one.



S1-100% (kW)

S6-40% (kW)

S1-100% (Nm)

S6-40% (Nm)

Knee speed (rpm)

The Fork head configuration can be chosen between two different ones depending if it's requested more stiffness or a better piece accessibility.

### HIGH-SPEED, PERFORMANCE AND PRECISION

The carriage and beam travel on properly dimensioned recirculating roller guideways ensure machining precision and stability. Axes are moved by a ground ball screw and double preloaded ball nut assembly. Maximum axis precision is achieved thanks to the micrometric technology applied. Axes are powered by digital drives and ultimate generation brushless servomotors.

### WIDE CHOICE OF ELECTROSPINDLES

The MATRIX machining centre can be supplied with a wide range of electrospindles depending on the type of material to be machined. Machining precision is always guaranteed by the thermal stabilising system which consists of a special software designed and developed to compensate natural thermal expansion in the

electrospindles when machining conditions vary.

### SIMPLE AND RELIABLE TOOL MAGAZINES

According to the various models, wheel-type or chain-type tool magazines with fast manipulator to reduce tool changeover times are available. Installed outside the work area and therefore free of dirt, these tool magazines ensure the greatest reliability over the time. They can be equipped with an automatic chip coding system containing tool data and information.

### DUST EXTRACTION AND CEILING ENCLOSURE

When machining composite materials and resin, MATRIX can be fitted with an efficient and effective dust extraction system which is installed on the spindle nose. In addition, top-roof bellows can be fitted to the machining centre creating a complete enclosure isolating the machine from the surrounding areas. Different models of dust extraction systems are available to satisfy any customer's requirements.



## THE IDEAL COOLING SYSTEM

Depending on the type of machining, the tool cooling system can use a coolant liquid which flows inside and outside the spindle (60 L/min) with fixed or variable (up to 70 bar) internal pressure, or incorporate a spray mist system, or simply use compressed air.

## MONITORING AND IN-PROCESS INSPECTIONS

MATRIX can be supplied with a laser tool presetter and a radio frequency probe for acquiring work-piece size and coordinates.

## THERMAL SHIELD

The machine can be hot, and must remain so. The important thing is that this temperature variation is gradual and controlled, so that the thermo-symmetric structure can adapt. To achieve this result, the structure has special patented insulation; if there is a sudden change in outside temperature, e.g. of around 5 °C, the machine opposes this change and takes much longer to heat up and therefore expand. The remaining temperature gap is a very small

value that can be managed by the passive (thermal cladding) and active (electronic) compensation systems in Matrix 1000.





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