

MORBIDELLI

AUTHOR 600KLS MACHINING CENTER



*30 amp @
440 hookup*

*Air supply
100 psi
10/cuft*

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MORBIDELLI

ONE (1) MORBIDELLI MACHINING CENTER - MODEL: AUTHOR-600KLS

BASE DESIGN AND CONSTRUCTION

The Morbidelli A600KLS owes its rigidity to the design and weight of its reinforced base and innovative one piece frame, (stationary "Y" axis support arm). Base weight is over 10,000 lbs. All portions of the base are of heavy gauge steel and are normalized after welding, ensuring all stress in the base is removed before it gets machined and drilled for the guides.



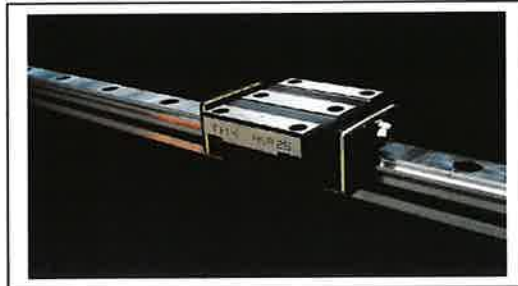
Today's machining centers are being asked to perform a wide variety of operations (sawing, routing, drilling) in both the vertical and horizontal planes at the highest speeds possible while, at the same time, maintaining a high quality of cut. Micro-vibrations are created around all types of CNC machining centers where there is head positioning, drilling, and high speed routing taking place on the machine base. Vibrations of any sort are degenerative in nature to high speed moving parts, such as, balanced router motor shaft assemblies, precision axis bearings, axis driver motors and encoders. Morbidelli solves the problem of deadening vibration as well as offering rigidity, by employing heavy gauge steel members for the base of the machine. This weight, coupled with the one piece frame offers the best combination of rigidity and balanced strength on a cantilever design.

HIGH PRECISION, HIGH LOAD PRISMATIC BEARING GUIDES

The advent of preloaded prismatic guides (THK) have increased the load weight and, hence, the speed and rigidity with which mass can be moved accurately and with repeatable results. Due to their added weight load capability (approximately 4 times that of conventional round guides), THK type guides can permit accurate head positioning at up to 100 meters per minute in the X axis.

THK Square Guide Dimensions

X Axis	30 mm	Rack & pinion
Y Axis	25 mm	Ball screw
Z Axis	25 mm	Ball screw



YASKAWA A.C. SERVO MOTORS IN ALL THREE AXES

A.C. servo motors, or A.C. brushless motors as they are sometimes called, are the latest in electronic linear motion technology. The "Yaskawa" brand is respected as one of the top choices in this field. A.C. servo motors use less power and produce a more even output (drive) throughout the power band. The ability to maintain a constant torque setting when going from an idle setting into a heavy rout produces cleaner cuts and longer tool life. These motors are controlled by digital, not analog, supply cards that offer the reliability and precision fine tuning associated with Solid State electronics. Axis positioning speeds of 100 meters per minute are now attainable with this new driver system. "Yaskawa" brand electronics can be serviced factory direct with service centers in Chicago, Atlanta, and Los Angeles.

Motor HP*

X - 3.9 HP

Y & Z - 1.7 HP

Instantaneous Max Speed*

X, Y & Z - 5,000 RPM

Rated Torque in lbs/in.**

X - 165 lbs./in."

Y & Z - 74 lbs./in."

* - These items and torque speed characteristics quoted in combination with SGDB ServoPack at an armature winding temperature of 20°C.

FUJI SOLID STATE INVERTER CONTROLS ROUTER RPM

"FUJI" (kW sized according to options chosen) Solid State frequency inverter supports the programmable router spindle speeds (S functions). By utilizing digital inverter technology, the programmer can select the correct cutter RPM and match it to the correct linear/rotational feed speed for the specific application and/or material being cut. This will give optimum quality of cut while greatly extending tool life. The inverter also acts as an electronic brake, stopping the router spindle motor in microseconds if an emergency signal is given.

HARDWARE AND SOFTWARE:

DELL PC BASED CONTROLLER

Upgraded computer and operating system to Windows XP

The Morbidelli Author 800 uses an office PC from Dell for operator interface. This Windows 98 based platform utilizes a NUM CN unit to communicate with the machine. The system offers the following standard features and is provided with a **3 Yr. Next Business Day On-Site Parts and Labor Warranty from Dell:**

- Intel™ Processor 866 MHz Pentium III
- Windows based operating environment
- 56K Modem included
- 10 Gig Hard Drive
- Integrated 3Com® network card
- 64 Megabyte RAM
- CD Rom 24X
- One 3 ½" disk drive
- Two serial ports, one parallel port
- 15" VGA color monitor

XILOG-OPERATOR INTERFACE

- Controlled acceleration and deceleration
- Linear and circular interpolation
- Ball screw pitch error compensation
- Self diagnostics through error messages
- Dynamic tool correction via PLC due to active wear concerning space and time.
 - SPACE: machine can be programmed to stop after pre-determined maximum linear usage has been reached.
 - TIME: Machine can be programmed to stop after pre-determined amount of work hours has been reached.



Xilog3 along with XilogPlus and PanelMac are installed on machine

- Subroutine programming (canned cycle) with library
- Specular programming: Allows writing of programs two different multiple reference points. For example the Left or Right corner of a panel.
- Parametric scaling of programs through use of template type programs that the operator creates and stores in memory. Part programs can then be proportionally scaled up or down in size without the need to re-write the entire program.
- Programs can be viewed from all 5 faces
- Built in macros for simple, widely used programs
- On board cycle optimization

ASPAN Rel 8.7 for office computer included

~~AutoCAD® G Code Tool Box~~

~~Through the result of a partnership between Morbidelli and CADCode comes the G-Code Tool Box. The customer is supplied not only with the G-Code Tool Box, which is an AutoCAD® based package, but is also supplied with an OEM copy of AutoCAD 2000. This software is intended to be office based and allow for code to be generated for the Morbidelli directly from AutoCAD to the machine.~~

- A sample CD is included with the quotation and can also be viewed at www.microvellum.com/video

Simantec™ PC Anywhere

Through the use of PC Anywhere, real-time diagnostics can be provided from SCM's facility in Duluth, Ga. Customer is responsible for providing a direct phone line to the machine.

STANDARD MACHINE EQUIPMENT INCLUDES:

30 Spindle Drilling Unit

Spindles are spaced on a 32 mm center-to-center distance. Each spindle with automatic and independent operation from the others. The spindles are arranged as follows:

- 14 spindles in a row in the X axis. **Spindle block completely rebuilt in summer of 2019**
- 16 spindles in a row in the Y axis
- ~~3+3~~ **2+2** independently controllable **horizontal** spindles in "X" axis
- 1 + 1 independently controllable **horizontal** spindle in "Y" axis

Vacuum Hold-down System with 10 Support Trays

Each tray has three (3) vacuum cups each for a total of 30 cups on the machine. Each tray is constructed of heavy duty aluminum extrusion and T-slotted along its length to accept custom clamps and jigs in the future.



Pneumatically Actuated Side and Back Stops

The worktable is equipped with a total of 4 pop-up side stops which creates 4 separate work zones (four 0.0 points). In addition each support tray has 2 pop-up back stop (16 total) and one phenolic panel lifting rail per tray (8 total).

Centralized Dust Extraction Manifold

The manifold has computer controlled butterfly shut-off valves for each unit. The valve is only opened for the unit (router, saw, etc.) machining at a particular time.



TECHNICAL SPECIFICATIONS

Work table dimensions:

Length 3600mm (141.73")
 Width 1200 mm (47.24")

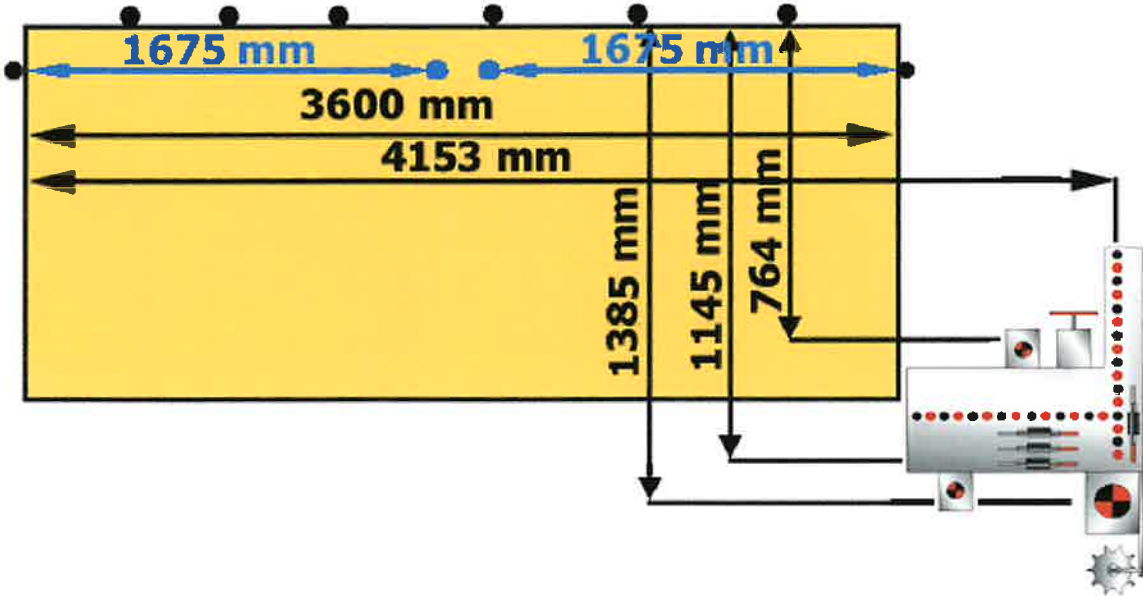
These dimensions may vary due to different specifications.

Boring pattern dimensions:

Maximum in X axis 3600 mm (141.73")
 Maximum in Y axis 1049 mm (41.29")
 Maximum in Z axis 180 mm (7.09")

Please refer to the technical data on drawing below.

Router working dimensions:
 Maximum in X axis 3600mm (141.73")
 Maximum in Y axis 1375mm (54.13")



spindle (main) motor:

Size (30 spindles)	4 HP
Spindle rotation speed	5000 RPM

Maximum linear positioning speeds:

X axis	80 meters/minute (262 feet/minute)
Y axis	80 meters/minute (262 feet/minute)
Z axis	22.5 meters/minute (73 feet/minute)

Standard dimension of vacuum pods 155 mm x 120 mm (6.1" x 4.7")

Dust extraction required (dependent upon options) minimum 2000 CFM

Operating air pressure (3/4" I.D. feed connection) 7 ATM (102 psi)

Installed power (dependent upon options) 20 kW

Electrics:

Autotransformer allows the choice of 208/230/460 volts, 3-phase, 60 cycles

MACHINE CUSTOM EQUIPPED WITH:**Quantity: 1 15 HP HSK Electrospindle with Rapid 10 Tool Change and "C" Axis**

15 HP "Constant Duty", Liquid Chilled electrospindle offers oversized 3" diameter arbor and ceramic bearings to ensure reliability and zero deflection under heavy use. Two (2) THK square guides mounted in the "Z" axis add to this unit's ability to handle heavy duty, flat panel routing guaranteeing long term repeatability and reliability. The router motor is fitted with a safety mechanism that locks tooling in place in case of emergency. 15 HP output is constant from 12,000 to 18,000 RPM while motor is programmable from 1500 to 18,000 RPM. One 10 position "on the fly" tool changer is mounted on the head. Motor is outfitted with Vector or "C" axes control for the ability to rotate special machining aggregates and facilitate machining 0° to 360° in the X-Y plane.

**Quantity: 1 9 HP HSK Electrospindle with Quick Change Tooling**

High frequency router unit with LH/RH rotation. Spindle RPM is fully programmable from 1500 thru 18,000 RPM. This is done by the programming of "S" codes and carried out by the utilization of a digital (Solid State) inverter. By utilizing digital inverter technology, the programmer can select the correct cutter RPM (spindle speeds) and match it to the correct linear/rotational feed speeds for the specific job and/or material being cut. This will give optimum quality of cut and greatly extend tool life.

Quantity: 1 0-90 Degree Flip Saw

The Author 600KLS also features a 0-90 degree flip saw, *using a separate motor from the drill unit*. The standard saw uses a 150mm blade with a maximum blade width of 10mm and rotates at 6,000 rpm. The unit will rotate automatically on command from the controller.

Quantity: 1 Autotransformer

Autotransformer allows the choice of 208 / 230 or 460 volt, 3-phase, 60 cycle.

Quantity: 1 Automatic Lubrication

Automatically controlled lubrication of guides and all axis ball screws.

Quantity: 1 1 KW Low Voltage Stabilizer

This stabilizer cleans up the single phase voltage running the microprocessor. This in conjunction with low capacitance filters ensures voltage spikes do not harm or interfere with the microprocessor.

Quantity: 1 100 Cubic Meter/Hour Vacuum Pump

Vacuum hold-down system featuring a "Becker" German oilless 100 cubic meter/hour vacuum pump. Offers the reliability of a substantial increase in vacuum power over more commonly used 100 cubic meter/hour pumps. "Becker" can also be serviced factory direct with a U.S. service center located in Atlanta.

Quantity: 2 Pneumatic locking for panel jigs**Quantity: 1 Bar Code Scanner**

Price quoted is for machine as described above and is subject to change if the specifications for the machine are hereafter changed at the request of the Buyer.

TERMS OF PAYMENT :

All payments to Seller will be made in U.S. dollars.

Purchase Order referencing SCM Group USA's "Offer To Sell" with the following terms of sale: