

Manhole Cutting / Beveling Machine

MCM 2000

Portable 4 or 5 axis cutting/beveling machine for cutting holes on flat or curved surfaces. The MCM 2000 enables programmable comprehensive oxy-fuel or plasma manhole cutting in wind tower constructions, ship building and vessel manufacturing with simultaneous beveling.

The cutting process is performed in a full programmable cycle. Innovative control system and software allow for double-sided beveling. Simple and handy interface enables an easy input and configuration of cutting/beveling parameters. Because of its unique magnetic clamping system MCM 2000 is a fully portable machine.



MCM 2000

Advantages:

- Cutting/bevelling on flat, concave and convex surfaces
- Fast and firm positioning by means of permanent magnets
- Efficient double-sided beveling in one operation
- User friendly control system interface
- Numerical torch angle control
- Custom made versions are available



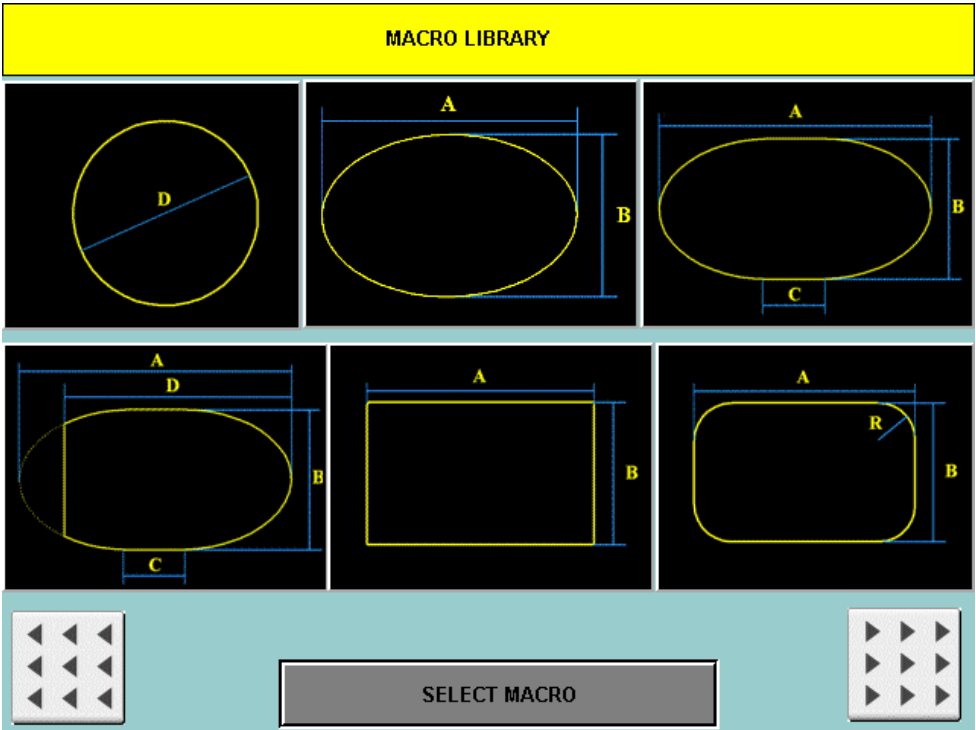
MCM 2000 Technical Specifications



Power supply	230-240V 50-60 Hz
Minimum pipe diameter	98-7/16" (2500 mm); also suitable for flat surfaces
Maximum hole length	up to 78-3/4" (2000 mm)
Maximum bevelling angle	60 °
Maximum hole width	up 47-1/4" (1200m)
Maximal cutting speed	up to 39.4 in/min. (5m/min)
Weight	237lbs 4 oz (110 kg); subject to particular configuration
Number of axes	5 axes controlled numerically
Torch ignition	manual
Magnetic holding power	around 1500 k
Plasma cutting	option

A unique control system makes shape programming very fast without the use of any external, costly software.

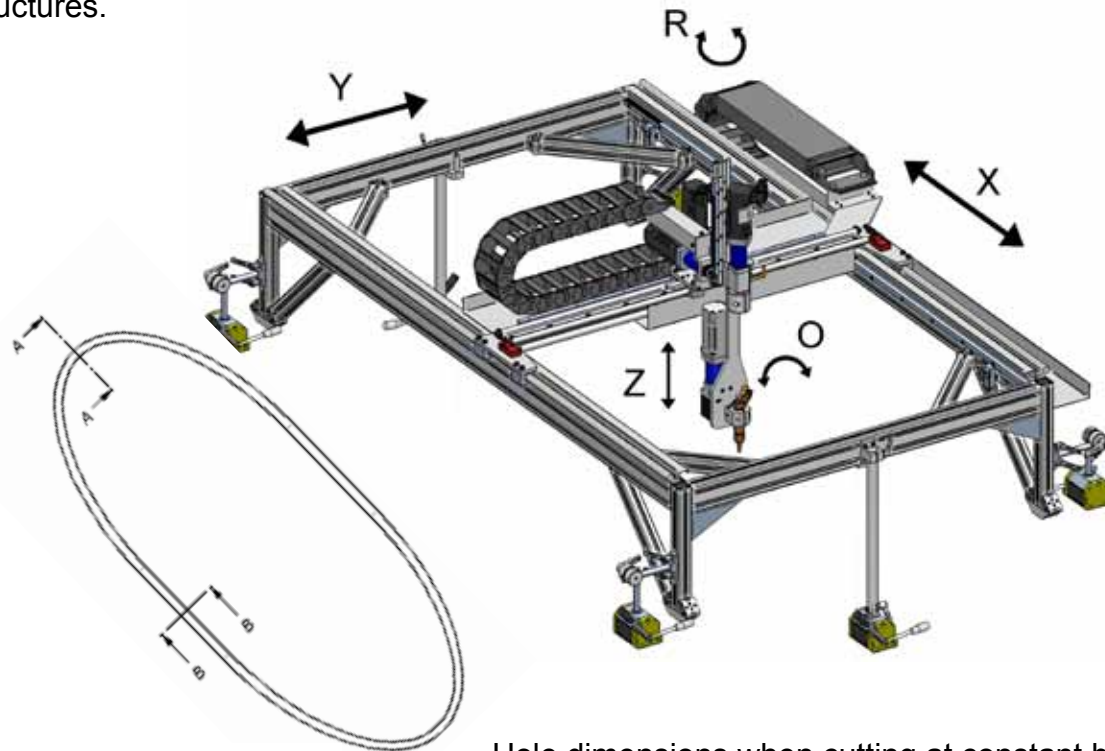
MCM 2000 control system holds a library of basic geometrical figures such as a rectangle, circle, ellipse and a rectilinear ellipse.



MCM 2000

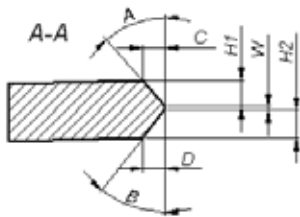
The programming process begins by choosing a required shape from the built-in shapes library. Next, the operator inputs the proper dimensions relating to a particular hole shape. Then the operator chooses beveling type, defines the way of burning lead-in & lead out and determines basic parameters of cutting. The operator can also transfer his own software in G-CODE format to MCM-2000 through a USB port by means of flash-type memory. Once the necessary data is entered, a numerical controller from the machine generates the torch path and angles (only 5 axis version).

Thanks to the 5th axis, the MCM 2000 is able to bevel both with a constant beveling angle or with a constant bevel width. MCM's 5th axis controls torch position with accuracy up to $0,1^\circ$, ensures numerical compensation of beveling angle and maintains constant bevel width. This very unique feature is highly valuable when beveling curved shapes on cone shaped convex or concave structures.



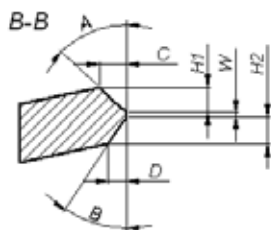
Hole dimensions when cutting at constant beveling angle:

- A – Constant
- B – Constant
- C – Variable
- D – Variable
- W – Constant
- H1 – Variable
- H2 – Variable

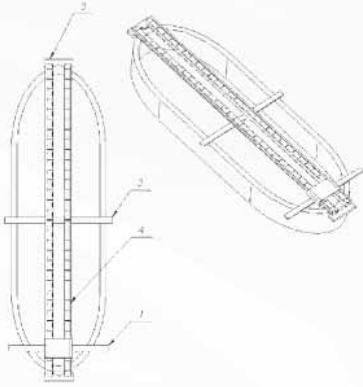


Hole dimensions when cutting at constant groove width:

- A – Variable
- B – Variable $A=B$
- C – Constant
- D – Constant $C=D$
- W – Constant
- H1 – Variable
- H2 – Variable $H1=H2$



MCM 2000



A measuring slide system consists of: 1-measuring arm, 2-additional supports, 3-sliding clamp, 4-main beam with linear scale.

The operator places the aluminum beam with perpendicular measuring slide on the doorframe and makes width measurement at selected points (both left and right side of the frame).

Then the measured values are entered into the machine's controller. Next the controller calculates the exact hole shape and automatically generates the torch path.

It is a cost effective, quick and precise way of performing doorframe shape programming. The whole operation takes a couple of minutes and each time ensures an ideal fit between beveled hole and door frame.



The Manhole Cutting/Beveling Machine can run with oxy-fuel or plasma cutting equipment. The control system ensures precise movement of the cutting torch and active compensation of torch position with regards to work piece curvature.

Light construction, flexible and user-friendly software allow MCM 2000 to be used as a portable CNC cutting machine which can be placed directly on a work-piece and fixed firmly by means of permanent magnets. The MCM machine can also work on a steel wall in a vertical position.

The MCM machine can perform any G-CODE format program transferred from an external computer.

Modes of work:

- in vertical or horizontal positions
- inside tubes or vessels with diameter above 98.4" (2500 mm)
- on flat surfaces (plates etc.)
- outside tubes or tanks
- customized versions are available



Manufactured to ISO 9001:2000 Standards by Promotech MCM 2000-BRO-0210