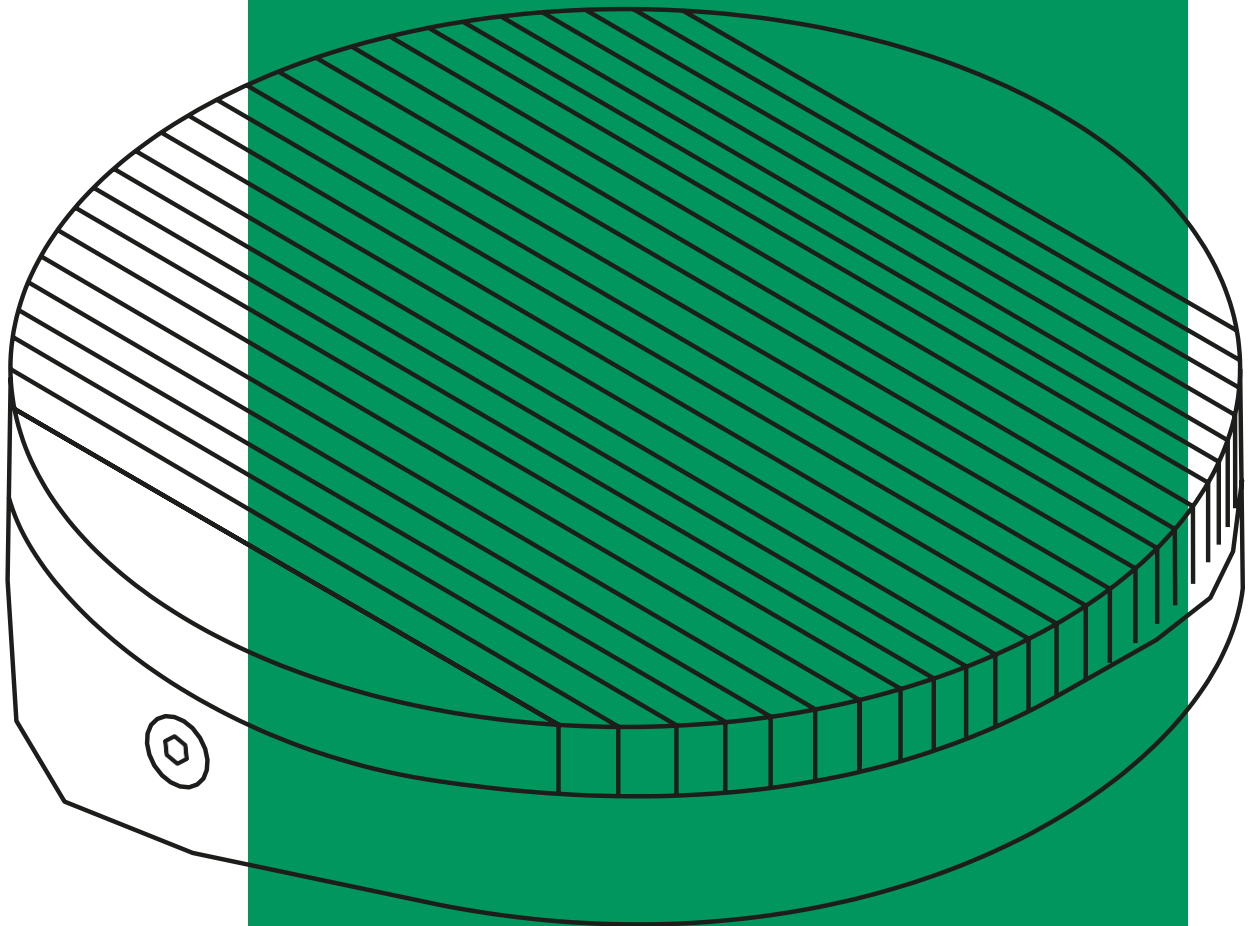




Magnetic Products, Inc.  
Highland, Michigan | [mpimagnet.com](http://mpimagnet.com)

# OPERATION AND SAFETY INSTRUCTION MANUAL

# MPI Double Ceramic Round Chuck





# OPERATION AND SAFETY INSTRUCTION MANUAL FOR USE OF MPI DOUBLE CERAMIC ROUND CHUCK

## WELCOME

Thank you for purchasing an MPI Double Ceramic Round Chuck. The Operation and Safety Instruction Manual contains all the information required for safe and optimum use of the chuck. Please read the instructions carefully and follow the directions.

On delivery, check that the chuck has been delivered not damaged or defective. Contact your supplier immediately if you find the product is damaged and/or defective.

The model number is located on the on the side of the chuck. Document the model number for future correspondence. Keep the model number and instructions in a safe location close to the workplace.

## WARRANTY

The warranty term is one (1) year from date of delivery. Warranty covers any manufacture or material defects. Warranty does not cover failures due directly or indirectly listed below:

- + Failure to comply with these operating and maintenance instructions.
- + Use other than being considered as normal.
- + Normal wear and tear.
- + Modifications or repairs not performed by MPI or an authorized party.

## INTRODUCTION

High precision during machining on the magnetic chuck can be achieved when the following conditions are met:

1. Before clamping the magnetic chuck onto the machine table, its bottom side must be reground. When regrounding the bottom side, the following conditions must be met:
  - + The magnetic chuck is placed on the table upside down and it is clamped on both front sides with clamps so that it cannot be dislocated during the grinding process.
  - + The magnetic chuck is clamped during the process.
  - + Grinding conditions:
    - soft attachment
    - grit 45 to 60
    - table motion: approximately 20 m/min
    - table cross feed:  $1/3 - 1/2$  x grinding disk width
    - table downfeed: 0.0004in

The grinding wheel must be trued roughly for this regrounding. This can be achieved by a diamond truing tool which is run quickly through the grinding wheel. The ground section becomes rough though, but it will increase the purity of surface grinding of the base surface. After grinding is completed, it is necessary to check the planarity of the ground surface. The temperature generated during grinding is not considered.

2. Once the grinder table and clamping holes are thoroughly cleaned, the magnetic chuck can be put on the machine table and fixed with clamps or screws.
3. Now the top surface of the magnetic chuck must be cleanly reground. Grinding must take place due to generation of heat having negative influence on the accuracy.  
At first, rough grinding is carried out according to grinding conditions indicated in 1. Next the wheel must be machined medium-finely with a truing tool.

Use a diamond truing tool and run it slowly over the grinding wheel. The downfeed motion of the diamond truing tool for this truing process can be approximately 0.0004 in. The feed reverse motion of the diamond truing tool is not recommended because the grinding wheel may become partly dull.

During the final regrounding, the magnetic chuck is being ground in activated state. Grinding takes place under the same grinding conditions as indicated in Step 1, but the amount of downfeed motion must not exceed 0.0002 in.

After final grinding, the surface of the magnetic chuck must be re-measured.

4. To avoid corrosion, the magnetic surface of the magnetic chuck and the machine table must be protected with grease. The thickness of the film must be minimal, otherwise the accuracy of the magnetic chuck will not be constant.

When all the above-mentioned conditions are met, good grinding results will be achieved.



## INSTRUCTIONS

1. If not yet done so, install the supporting bars at the back and at the end using the screws in the slots of the bars. In this manner, adjustment in height is made possible when you clamp high components. Secure the shim between the rear rail and the chuck edge to prevent the magnetic field from short-circuiting on the pole plate.
2. Remove all burrs and minor surface imperfections (scale, rust, dust) preventing the workpiece from having good contact with the surface of the magnetic chuck.
3. When the workpiece is not straight or it is bent, use shims to prevent the workpiece from swinging. These shims should be made of well-magnetizable steel so that flux lines can enter the workpiece.
4. When you clamp small workpieces, avoid weaker areas of the chuck which are usually found above the switching mechanism and at short sides of the locking laminations.
5. Always put the workpieces against the supporting bars at the back and at the end in the direction of machining forces to increase the slip resistance. For high workpieces, it is necessary to adjust the supporting bars at least above a half of the workpiece height and use auxiliary backplates when necessary.
6. Small pieces (smaller than 15.5 in) are supported best using extra shims. However, keep in mind that you must not deflect too much flux from the workpieces. Use thin shims.
7. It is recommended to carry out cutting depth of 0.04 or 0.08 in when you cut the first surface whereas it is necessary to consider the workpiece size and height. A deeper cut can be made on the second surface because the first, which has been machined, provides a high holding force now.

Keep in mind that the maximum holding force is achieved on mild steel with the contact surface machined. Alloyed tool steels, especially in hardened state, are less magnetic, the same holds true for cast iron.

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MPI reserves the right to change any components, details, and accessories considered necessary for the improvement of this magnetic device, or for production or commercial purposes, without updating the Operation and Safety Instruction Manual.

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