



MODEL T1227/T1228/T1229 MAGNETIC CHUCK INSTRUCTIONS

For questions or help with this product contact Tech Support at (570) 546-9663 or techsupport@grizzly.com

Introduction

The T1227-29 Magnetic Chucks are designed to safely secure flat ferrous metal workpieces to the work table for grinding operations. The ON/OFF function of this chuck allows for easy adjustment of a workpiece.

Inventory

Description	Qty
A. Magnetic Chuck.....	1
B. Hex Wrench 8mm.....	1
C. Step Clamp Hold-Down Assemblies	2
—T-Slot Bolts M12-1.75 x 70.....	2
—Hex Nuts M12-1.75.....	2
—Flat Washers 12mm.....	2

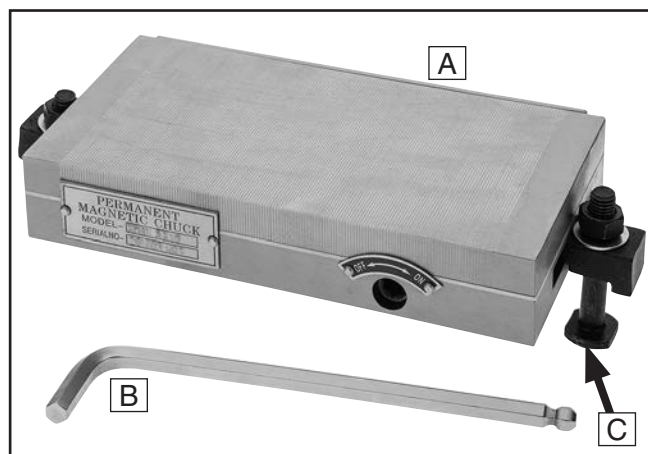


Figure 1. Models T1227-29 inventory.

NOTICE

If you cannot find an item on this list, carefully check around/inside the machine and packaging materials. Often, these items get lost in packaging materials while unpacking or they are pre-installed at the factory.

! WARNING

Magnetic chucks are heavy! Get assistance if needed when installing or removing the magnetic chuck from the surface grinder. Wear heavy-duty leather boots for foot and toe protection, and keep hands and fingers away from all pinch points. Ignoring this warning can lead to crushing injuries.



Magnetic Chuck Safety

- 1. STRONG MAGNETIC FIELD:** A magnetic chuck generates a powerful magnetic field. Keep all objects sensitive to magnetic fields (watches, cellular phones, magnetic cards, etc.) away from the magnetic chuck to prevent damaging them.
- 2. PINCHING/CRUSHING INJURY:** A magnetic chuck generates significant clamping power. When a magnetic object is moved near a chuck that is turned **ON**, it will be attracted. Any body parts caught between the object and chuck will be pinched or crushed by the magnetic force. Turn magnetic chuck **OFF** any time it is not in operation.
- 3. WORKPIECE EJECTION:** The workpiece could be ejected during operation, causing it to hit the operator with deadly force. Never stand directly behind the workpiece (in the direction of spark travel).

4. **MAGNETIC FORCE VARIATION:** Clamping force generated varies greatly depending on the material, thickness, flatness, and cleanliness of the workpiece. A workpiece that does not clamp securely may be ejected from the chuck during use and thrown into the operator or bystanders. ALWAYS check for adequate clamping force before beginning an operation.
5. **SUDDEN WORKPIECE MOVEMENT:** When the magnetic force is released, workpieces may shift or fall unexpectedly and could result in crushing injuries or personal injury. Fully support any clamped workpieces before turning the magnetic chuck **OFF**.
6. **PROPER MOUNTING:** If magnetic chuck shifts during use, chuck and workpiece could be ejected from machine and thrown into operator or bystanders, resulting in impact or crushing injuries. Make sure the magnetic chuck is properly secured to grinding table before operation.
7. **CHUCK STOPS:** If the workpiece is not resting against the stops during operations, it may shift and could be ejected from the machine and thrown into the operator or bystanders, resulting in impact or crushing injuries. Make sure the workpiece rests against the rear and side stops during operation. If necessary, use spacers between the stops and workpiece.
8. **SURFACE GRINDER SAFETY:** Failure to follow surface grinder safety could result in serious personal injury or even death. Follow all safety guidelines provided by your surface grinder manufacturer.
9. **RELEASING CLAMPING FORCE:** Turning the magnetic chuck **OFF** during operation will release the workpiece, which may cause the workpiece to shift and be thrown into the operator or bystanders. Never turn the chuck selector **OFF** during grinding operation.
10. **FERROUS METALS:** This magnetic chuck will only work on metals containing iron. Non-ferrous metals will be ejected from grinder during use and could be thrown into operator or bystanders, resulting in impact or crushing injuries. DO NOT expect the chuck to hold aluminum or other non-ferrous metals.

Grinder Preparation

Before placing your magnetic chuck onto your surface grinder table, you must ensure that your grinder table is flat. Variations in table flatness can occur as a result of shipping and storage, manufacturer's production tolerances, overheating during use, previously mounted magnetic chucks, or for various other reasons.

To prepare the grinder table for chuck mounting, very lightly grind, or "dust", the entire table surface to make sure it is perfectly flat.

Chuck Preparation

Before putting your new magnetic chuck to use, there are a few steps you must take to ensure optimal performance and accuracy from your grinding operation.

Removing Surface Imperfections

If damage was done to the crate during shipping, the bottom surface may have scratches or dings. If any imperfections are detected, perform the following steps.

To remove surface imperfections:

1. Very carefully clean grinder table and top surface of magnetic chuck to remove any foreign material.
2. Use a polishing stone to remove any surface imperfections on machine table and top surface of magnetic chuck. Rough table finish may reduce holding power during the following steps.
3. Carefully place magnetic chuck upside-down onto table surface.
4. Engage magnet by turning chuck selector to the ON position to lock it to the table.
5. Use surface grinder to grind bottom surface flat and remove any imperfections. Be careful to remove only as much material as necessary, and DO NOT attempt to remove more than 0.0001" per pass.



Surface Flatness

The surfaces of your magnetic chuck were ground flat during production. However, it's a good idea to double-check that the chuck is still flat after shipping and handling.

To test for flatness:

1. Make sure magnetic chuck is turned **OFF**, then carefully place it upside-down on a clean work surface.
2. Use a precision straightedge to check for flatness along length, width, and diagonals, as shown in **Figure 2**.

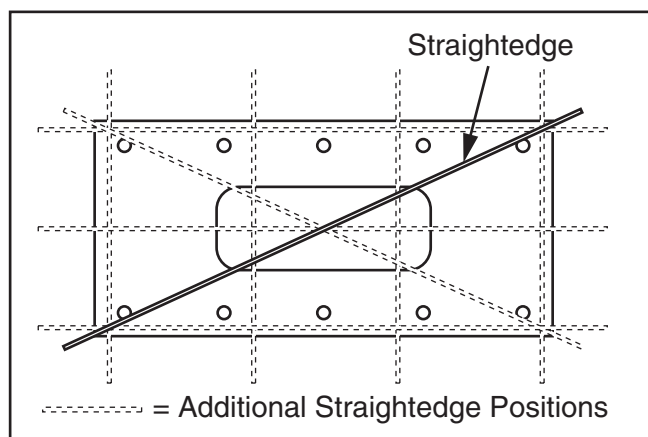


Figure 2. Testing surface flatness.

3. Carefully flip magnetic chuck over, then perform the same check on top surface of chuck.
 - If no space is detected between magnetic chuck surfaces and the straightedge, proceed to **Removing Surface Imperfections**.
 - If any space is detected between the bottom surface and the straightedge at any point, the chuck has warped slightly during shipping. Perform **Step 4** to correct warpage.
4. Clean, then use a polishing stone on bottom surface of chuck and table surface of your surface grinder to remove any foreign material and surface imperfections. Then carefully place magnetic chuck right-side up onto grinder table in the position you plan to mount it. Allow it to sit overnight. During this time, any warping will be corrected as the chuck becomes matched to table.

5. After allowing magnetic chuck to sit overnight, perform **Steps 1–3** again. Repeat as necessary until there is no longer any trace of warping.

If, after several attempts, magnetic chuck is still warped, you must correct warping by grinding.

If you attempt to correct for warping by grinding away high points, you will create variations in overall thickness of chuck across its length and width. These variations must be corrected by grinding portions of the other side of the chuck to compensate.

For example, if your chuck bows upwards at each end and you correct this by slightly grinding away the surface at each end, your chuck will be left thicker in the middle. You will have to flip the chuck, then grind away the middle portion to restore flatness.

Matching Chuck to Table

To ensure that the top surface of your new chuck stays equidistant from the grinding wheel during table travel, you must grind the surface of your magnetic chuck to match your table.

To match your chuck to your table:

1. Very carefully clean grinder table and bottom surface of magnetic chuck. Place magnetic chuck on table, positioning it as desired, then clamp it with the included holddowns.
2. Grind entire surface of magnetic chuck, making sure chuck stays as cool as possible during this process to avoid damaging magnets and keep it from warping. **DO NOT** attempt to remove more than 0.0001 inch per pass.

NOTICE

Avoid overheating chuck during grinding. Too much heat during grinding will bow chuck, causing middle portion to be ground more than ends. Once chuck cools again, it will flatten, leaving center area thinner than the edges. Excessive heat will damage magnets and reduce holding power. DO NOT attempt to remove more than 0.0001" per pass.



Chuck Mounting

Once magnetic chuck has been matched to your work table, ensure it is properly mounted to the surface grinder before each use.

To mount chuck to grinder table:

1. DISCONNECT MACHINE FROM POWER!
2. Very carefully clean grinder table and bottom surface of magnetic chuck to remove any foreign material.
3. Place magnetic chuck on grinder table and position it as desired.
4. Use included holddown assemblies (or other appropriate mounting hardware) to clamp chuck to table, as shown in **Figure 3**.

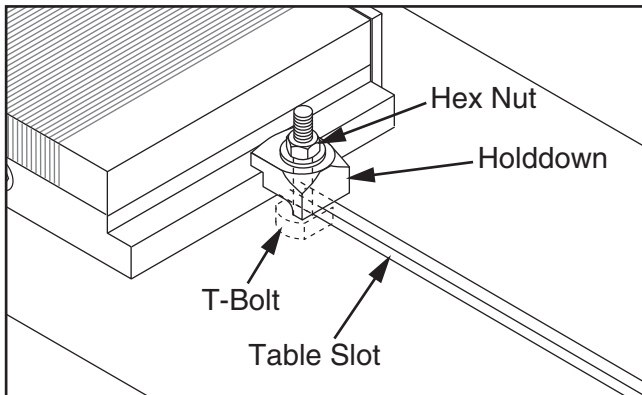


Figure 3. Example of clamping magnetic chuck to table.

Operations

The purpose of the operation section is to familiarize you with the basic controls, terminology, capabilities, and adjustments that are necessary to use this tool.

To better understand the remaining parts of this section, please take a moment to read this overview.



To complete a typical operation, the operator does the following:

1. Examines workpiece to make sure it is suitable for grinding.
2. Ensures magnetic chuck is mounted securely to surface grinder table.
3. Thoroughly cleans top surface of magnetic chuck and bottom of workpiece(s) to ensure positive mating between the two.
4. Places workpiece(s) on chuck.
5. Adjusts work stops and adds spacers as necessary to prevent workpiece(s) from sliding during operation.
6. Engages magnetic chuck by turning ON/OFF selector to ON.
7. Checks that chuck has secured workpiece(s).
8. Proceeds with grinding operation.
9. Upon completion of grinding, allows grinding wheel to come to a stop, then disengages magnetic chuck and removes workpiece.



Clamping Workpiece

Before any operation can be safely performed, the workpiece must be properly positioned and clamped on the chuck. While the magnetic field is effective at keeping the workpiece from lifting off the table during use, it may not be sufficient to keep the workpiece from sliding. To keep the workpiece from sliding, use the work stop.

To use work stops:

1. DISCONNECT MACHINE FROM POWER!
2. Turn ON/OFF selector to **OFF**.
3. Loosen cap screws securing work stops, lift work stop high enough so it is above surface of magnetic chuck, but below workpiece surface, as shown in **Figure 4**, then re-tighten cap screws.
4. Position workpiece so it is near center of chuck, as shown in **Figure 4**.

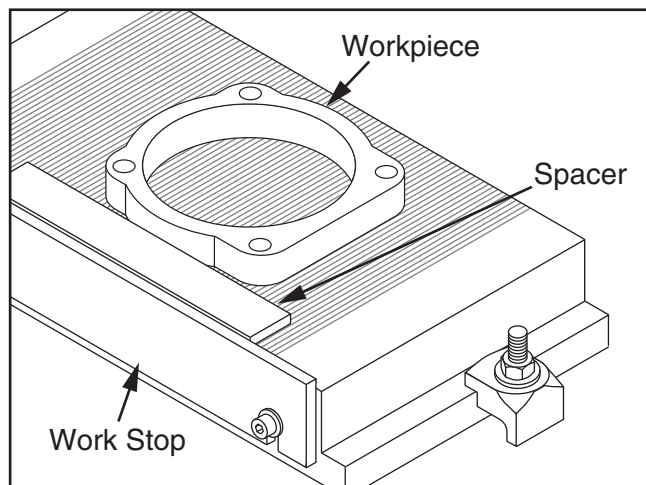


Figure 4. Positioning work stop and spacer.

!WARNING

Non-stripped areas at the ends of the chuck **DO NOT** produce a significant magnetic field and **WILL NOT** securely clamp workpiece. Placing a workpiece in these areas could result in workpiece being ejected from chuck and thrown into operator or bystanders during use!

5. Place a spacer strip of steel bar (it must be thinner than workpiece) as necessary between workpiece and work stop to provide bracing against slippage.

Note: *Spacer strip also aids in proper workpiece alignments to magnetic chuck and grinder.*

6. Make sure workpiece is snug against spacer strip and spacer is snug against stop, then turn ON/OFF selector to **ON** position, as shown in **Figure 5**, to engage magnet.

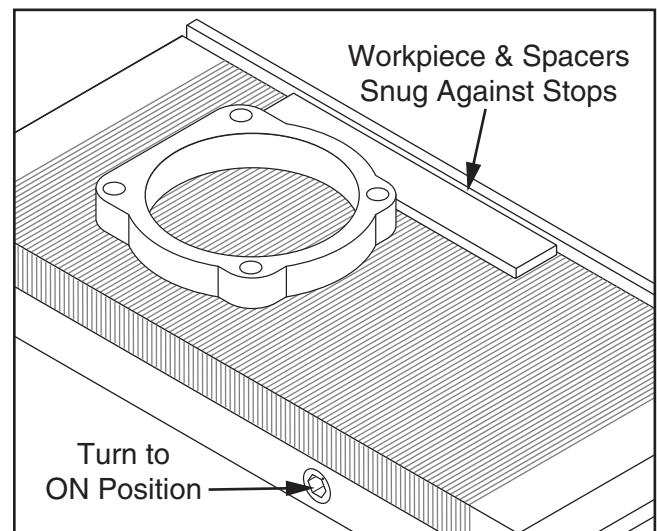


Figure 5. Positioning work stop and spacer.

7. Make sure workpiece is secured by pulling upward on it with moderate to strong force. If it releases, turn magnetic chuck **OFF**, make sure mating surfaces are clean, then repeat **Step 6**.

— If you are unable to secure workpiece with magnetic chuck, you will need to use an alternative mounting method.



Using Auxiliary Magnetic Blocks

If your workpiece cannot be placed flat on the chuck due to warping, an irregular shape, or any other reason, you must use auxiliary magnetic blocks to support the workpiece. To ensure that the workpiece is held parallel to the chuck, you may need to grind the auxiliary magnetic blocks before placing your workpiece in them.

Figure 6 shows an example of how magnetic V-blocks can be used to mount a workpiece with an irregular bottom surface.

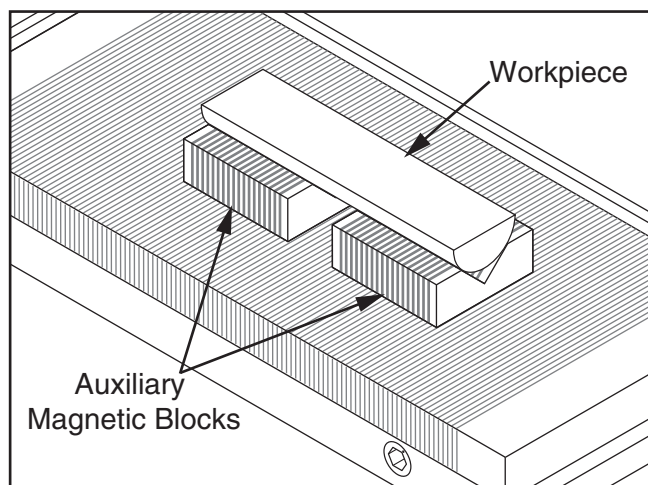


Figure 6. Using auxiliary blocks.

⚠ CAUTION

Only use magnetic blocks on this chuck to hold irregular workpieces. Using non-magnetic auxiliary blocks will not provide sufficient clamping force and may result in workpiece being thrown from grinder and into operator or bystanders during use.

Removing Workpiece

After the grinding operation, remove your workpiece from the magnetic chuck.

To remove a workpiece from chuck:

1. DISCONNECT MACHINE FROM POWER!
2. Turn ON/OFF selector to **OFF** position.

3. Clean away any metal chips or swarf from around workpiece and magnetic chuck with a stiff-bristled brush and remove workpiece from chuck.

Note: Workpiece may seem stuck to chuck due to residual magnetism in workpiece or a vacuum between workpiece and chuck. If this is the case, a blast of air from an air nozzle can be used to release the vacuum. Alternately, you can slide the workpiece off the side of the chuck to remove it. Using this method, however, may result in scratches to the chuck surface.

Care & Maintenance

For optimal performance from your magnetic chuck, follow the maintenance schedule below.

Daily:

- Check/correct loose clamping bolts.
- Use a vacuum, rag, or brush to clean the chuck after use. Never use air pressure to clean metal chips/swarf away from a chuck.
- Apply rust preventative to magnetic chuck after each use to prevent rust.
- Avoid leaving a workpiece on the magnetic chuck when not in use.
- Inspect for damage to the surface of magnetic chuck that may compromise its flatness. Re-grind as necessary.
- Stone chuck surface before use.

Monthly:

- Grind top of magnetic chuck to reduce effects of warping.

Semi-annually/Annually:

- Remove chuck, re-grind table, re-install chuck, then re-grind chuck surface.

NOTICE

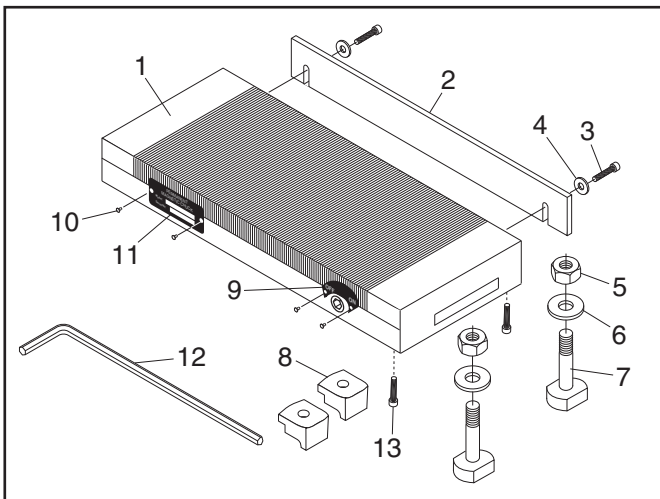
If you plan to place your surface grinder into storage, remove magnetic chuck from table. Metal objects left on grinder table over extended periods will rust and cause permanent damage to magnetic chuck and grinder table. Store magnetic chuck on a flat surface to minimize warping.



Troubleshooting

Symptom	Possible Cause	Possible Solution
Magnetic chuck does not attract the workpiece.	<ol style="list-style-type: none"> 1. Magnetic field selector not engaged. 2. Workpiece is a non-ferrous material. 3. Selector mechanism faulty. 	<ol style="list-style-type: none"> 1. Turn ON/OFF selector to ON position. 2. Use only materials that are attracted to magnets; use alternative clamping methods. 3. Inspect/replace magnetic chuck.
Holding power is weak.	<ol style="list-style-type: none"> 1. ON/OFF selector is not fully turned to ON position. 2. Chuck surface dirty. 3. Workpiece placed off-center. 4. Workpiece mating surface irregular/has contaminants. 5. Workpiece material not strongly attracted to magnets. 	<ol style="list-style-type: none"> 1. Make sure ON/OFF selector is turned all the way to ON. 2. Clean chuck surface. 3. Keep workpiece centered in chuck. 4. Use holding blocks; clean mating surface before placing on chuck. 5. Use only materials that are attracted to magnets; use alternative clamping methods.
Workpiece cannot be removed from chuck.	<ol style="list-style-type: none"> 1. ON/OFF selector is not fully turned to OFF position. 2. Vacuum lock between chuck and workpiece; residual magnetism between workpiece and chuck. 	<ol style="list-style-type: none"> 1. Make sure ON/OFF selector is turned all the way OFF. 2. Slide workpiece off side of chuck.

Parts Breakdown & List



REF	PART #	DESCRIPTION
1	T1227001	MAGNETIC CHUCK ASSEMBLY (T1227)
1	T1228001	MAGNETIC CHUCK ASSEMBLY (T1228)
1	T1229001	MAGNETIC CHUCK ASSEMBLY (T1229)
2	T1227002	WORK STOP (T1227)
2	T1228002	WORK STOP (T1228)
2	T1229002	WORK STOP (T1227)
3	T1227003	CAP SCREW M6-1 X 12
4	T1227004	FLAT WASHER 6MM
5	T1227005	HEX NUT M12-1.75
6	T1227006	FLAT WASHER 12MM
7	T1227007	T-SLOT BOLT M12-1.75 X 70
8	T1227008	HOLDDOWN
9	T1227009	ON/OFF NAMEPLATE
10	T1227010	RIVET 3 X 10MM NAMEPLATE, STEEL
11	T1227011	TOOL NAMEPLATE
12	T1227012	HEX WRENCH 10MM, LONG SHAFT
13	T1227013	CAP SCREW M6-1 X 25

NOTICE

We do our best to stock replacement parts when possible, but we cannot guarantee that all parts shown are available for purchase. Call (800) 523-4777 or visit www.grizzly.com/parts to check for availability.

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