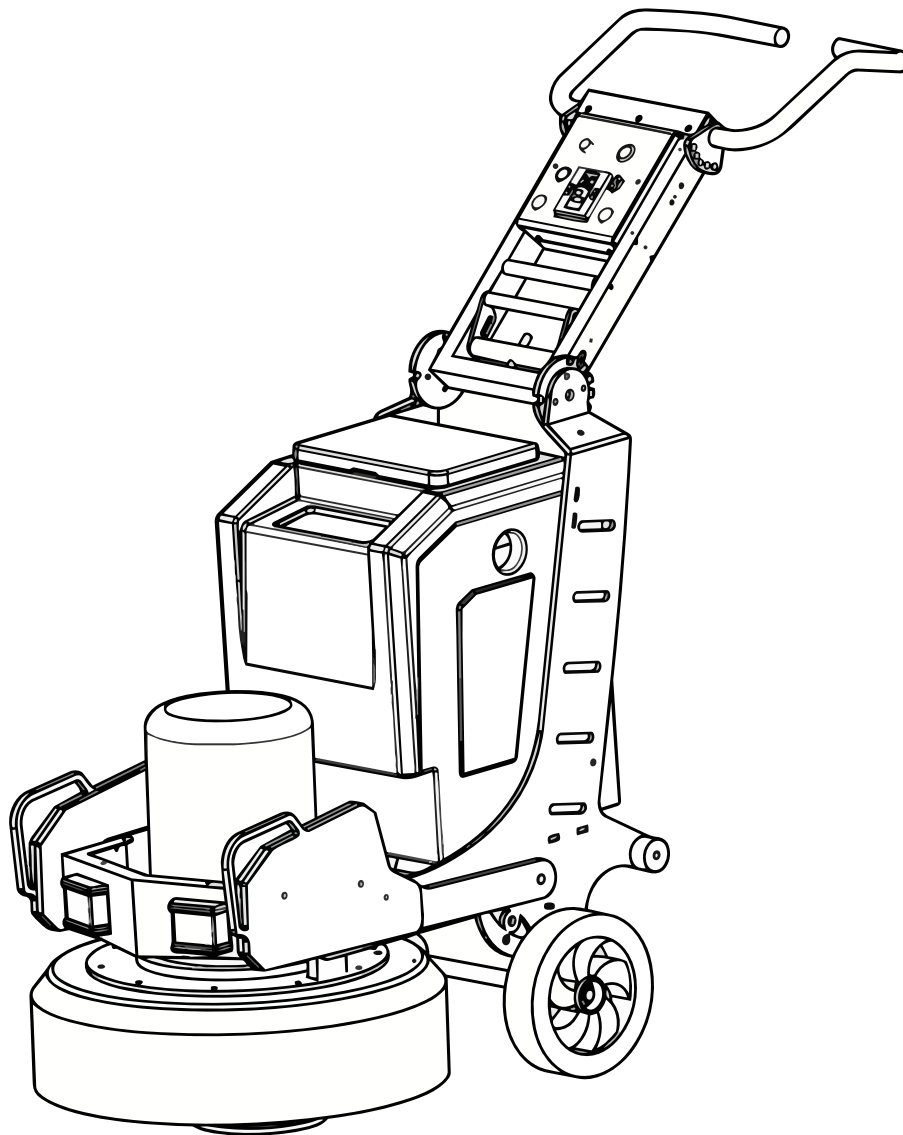




SG600 25" Planetary Grinder

How-To Operating Guide



25"
Grinding Width

15 HP
Motor

300-1,400 RPM
Speed

220V / 3-Phase
Power

1. SAFETY REQUIREMENTS

Read all safety precautions before operating the **SG600**. Failure to follow these guidelines can result in serious injury or equipment damage.

Required PPE — Wear Before Every Operation

- ANSI-rated safety glasses or face shield
- NIOSH-approved respirator or dust mask (N95 minimum)
- Hearing protection (85 dB+ exposure during operation)
- Steel-toed boots and work gloves
- Avoid loose clothing or jewelry near rotating parts

Electrical & Power Safety

- Always use a properly grounded 220V / 3-phase outlet
- Inspect power cord for damage before each use; replace immediately if frayed or cut
- Never operate in standing water or wet conditions without appropriate GFCI protection
- Power off and unplug before changing tooling, clearing jams, or making any adjustments

2. PRE-START CHECKLIST

Complete this checklist before every job. These steps protect your tooling, your machine, and your results.

2a. Inspect the Floor

- Remove all furniture, equipment, and debris from the work area
- Sweep or vacuum loose dirt and dust
- Identify and mark cracks, expansion joints, and floor drains to avoid
- Check for grease, oil, or chemical contamination—degrease with a suitable cleaner and allow to fully dry before grinding
- Identify any raised edges, transition strips, or embedded hardware that could catch the grinder

PRO-TIP

Use a Mohs hardness pick set before selecting diamond tooling. Hard concrete (Mohs 6+) requires a soft-bond diamond; soft concrete requires a hard-bond diamond. Using the wrong bond causes rapid tool wear or glazing.



2b. Inspect the Machine

- Confirm all three grinding heads are properly seated and latched
- Check that diamond tooling segments are secure with no visible cracks or excessive wear
- Inspect the dust shroud for tears, gaps, or debris buildup
- Verify vacuum hose connection is secure and the vacuum filter is clean (see Section 5)
- Check the power cord for damage—replace if needed before use
- Test the emergency stop button before each use

2c. Set Up Dust Control

- Connect the vacuum hose to the grinder's dust shroud port
- Ensure the vacuum is powered on and operating before starting the grinder
- Seal doorways, HVAC vents, and other openings in the work area to contain silica dust
- Never operate the **SG600** without an active dust collection system—OSHA silica regulations require it

3. SELECTING & INSTALLING DIAMOND TOOLING

The **SG600** uses three planetary heads, each accepting standard Velcro-backed or bolt-on diamond tooling segments. Choosing the correct grit and bond is the single most important factor in achieving a quality surface profile.

3a. Diamond Tooling Selection Guide

GRIT	APPLICATION	PROFILE (CSP)	TYPICAL USE
PCD	Heavy coating removal, old adhesives	CSP 4-5	Removing existing coatings/mastics
6-30 GRIT	Standard surface prep for coatings	CSP 2-3	Epoxy base coats, Simiron SG600 system prep
80-120 GRIT	Light prep, surface refinement	CSP 2	Thin coatings, sealers
200+ GRIT	Polishing passes	CSP 1	Decorative polished finishes

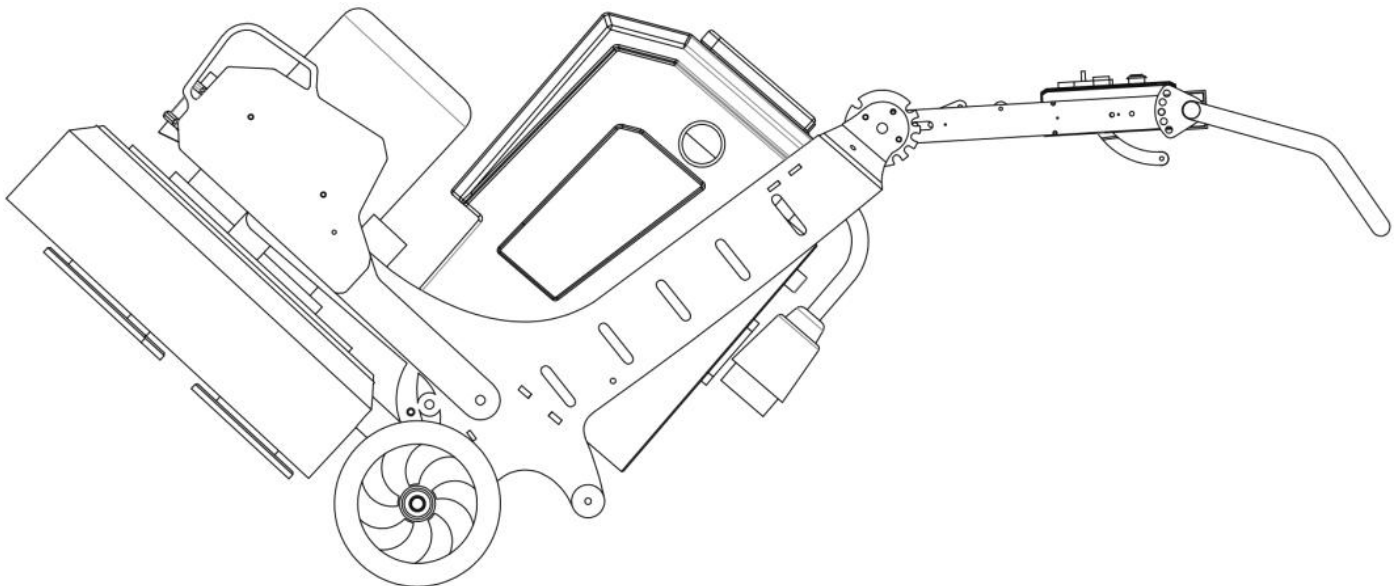
SYSTEM RECOMMENDATION

For most **Simiron** coating applications (epoxy base coats, **SG600** system), a 6-30 grit diamond is the correct starting point. This achieves a CSP 2-3 profile—the ideal anchor for high-build coatings. For previously coated or sealed floors, start with PCD (polycrystalline diamond) tooling to break through the existing coating first, then follow up with 6-30 grit.



3b. Installing Tooling on the Grinding Heads

- Power off the machine and unplug from the power source
- Tilt or raise the grinder head if needed to access the underside grinding plates
- Remove any existing tooling by releasing the Velcro attachment or unscrewing the retaining bolt (depending on tooling type)
- Repeat for all three heads. Always install matching grit/bond across all three heads—mixing grit on a single pass produces uneven grinding patterns
- Visually inspect all three heads before powering on. Loose tooling can become a projectile hazard



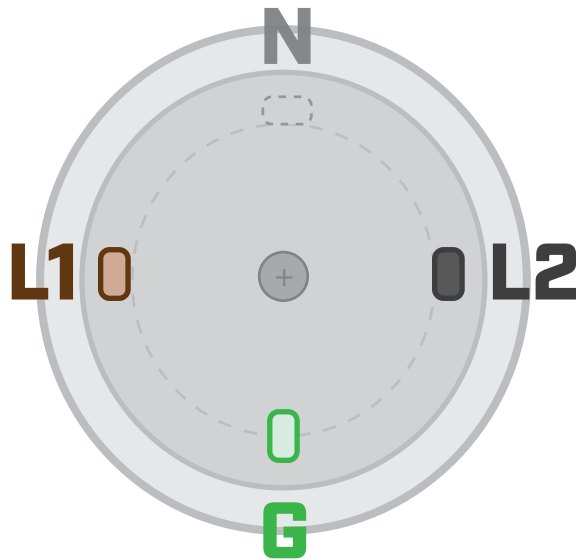
4. POWER CORD WIRING GUIDE — 220V SETUP

The **SG600** 25" Planetary Grinder is a professional-grade 220V machine. It comes equipped with a 3-wire cord (green, grey, and brown wires) that must be connected to a 4-prong 220V / 30-Amp plug before the grinder can be powered from a generator or outlet. This guide provides all the information needed to complete that wiring safely and correctly.

4a. What You Will Need

- 4-prong 220V / 30-Amp plug (NEMA L14-30 or equivalent)—available at most electrical supply stores
- Flathead and/or Phillips screwdriver (for terminal screws on the plug)
- Wire strippers (optional, only if wire ends need to be freshened up)

4b. Wiring Diagram



4-PRONG 220V / (NEMA L14-30)

WIRE COLOR	CONNECT TO
GREEN	G-Ground
BROWN	Line 1 (Hot)
GREY	Line 2 (Hot)
NEUTRAL (N)	Leave Empty

Note

The Neutral (N) terminal on your 4-prong plug is intentionally left empty when wiring the **SG600**. The grinder only requires two hot lines and a ground—no neutral connection is needed.

4c. Step-by-Step Wiring Instructions

Follow these steps carefully. If you are not comfortable working with electrical connections, consult a licensed electrician before proceeding.

- De-energize your power source. Make sure your generator or outlet is completely off before handling any wiring
- Open the plug housing. Unscrew the back of the 4-prong plug to expose the four terminals: G (Ground), N (Neutral), Line 1, and Line 2
- Connect the Green wire → G (Ground) terminal. The green wire is the safety ground. It must always be connected to the terminal marked "G" or with the ground symbol
- Connect the Brown wire → Line 1 terminal. Insert the brown wire into either hot terminal (Line 1 or Line 2—both are interchangeable on the SG600 since both carry equal power)
- Connect the Grey wire → Line 2 terminal. Insert the grey wire into the remaining hot terminal
- Leave the N (Neutral) terminal empty. The SG600 does not use a neutral connection. Do not insert any wire into the N terminal
- Close and secure the plug housing. Tighten all terminal screws firmly, then reassemble the plug casing before applying power

4d. Making or Using an Extension Cord

If you need a longer reach from your generator, an extension cord can be built to specification:

- #8 gauge (8 AWG) cord—available at electrical supply warehouses, Grainger, Lowe's, or Home Depot
- Matching 220V / 30A plugs are typically available at the same locations
- The 8-gauge cord will typically contain 4 wires

Wire the extension cord using the same logic: green wire to G on both ends. For the remaining wires, it does not matter which color goes to which hot terminal—just ensure the same wire connects to the same terminal on both ends of the cord.

4e. Wiring Into a Breaker Panel

Important

Never recommend or attempt to wire the grinder directly into a client's electrical panel unless you are a properly licensed electrician. Doing so without proper licensing may be illegal and creates serious safety risks.

If a hard-wired connection is required, pigtail adapters can be made to plug into an existing 220V line—these are wired the same way as an extension cord. Our strong recommendation is that customers supply their own independent power source (such as a generator) to remain fully self-sufficient on any job site.



5. OPERATING THE GRINDER

5a. Powering On

- Confirm the dust collector is running before starting the grinder
- Position the grinder at the starting edge of your work area. For most jobs, begin at the farthest wall and work toward the exit
- Set the RPM control to a low setting (300–500 RPM) for startup. You will increase speed once the machine is moving
- Engage the power switch. The three planetary heads will begin rotating—the satellite heads spin opposite to the main head, which eliminates linear grinding marks in the floor
- Gradually increase RPM to your working speed once the machine is moving. For standard surface prep, 800–1,200 RPM is a typical working range

5b. Grinding Technique

How you move the machine directly affects the finish quality and tool life. Follow these guidelines on every pass:

- Walk at a steady, consistent pace—approximately 1–2 ft/sec. Moving too slowly risks burning the tooling or over-grinding; moving too fast produces an insufficient profile
- Grind in straight, overlapping passes. Overlap each pass by 2–3 inches to avoid leaving unground strips between passes
- Work in a systematic pattern: complete the main field first, then address edges with a hand grinder or smaller edge grinder
- Do not stop the machine in one spot while the heads are spinning—this creates circular gouges in the floor
- Use the handle's locking adjustment to control the grinding head angle. A level head produces a flat grind; slight forward tilt adds more aggressive cutting action at the leading edge

READING THE FLOOR

After each pass, stop and inspect the surface. Freshly ground concrete should appear uniformly matte with consistent scratch marks (no shiny or glazed patches). Shiny spots indicate the diamond is not cutting—check bond hardness or increase head pressure. If you notice chatter marks or an uneven pattern, slow your walking speed and check that all three tooling sets are evenly worn.



5c. Speed & Pressure Settings

FLOOR CONDITION	RECOMMENDED RPM
New / bare concrete (soft)	600–900 RPM
New / bare concrete (hard)	1,000–1,400 RPM
Previously coated floor	500–800 RPM with PCD/coarse tooling
Refinement / finish pass	1,000–1,400 RPM with finer tooling

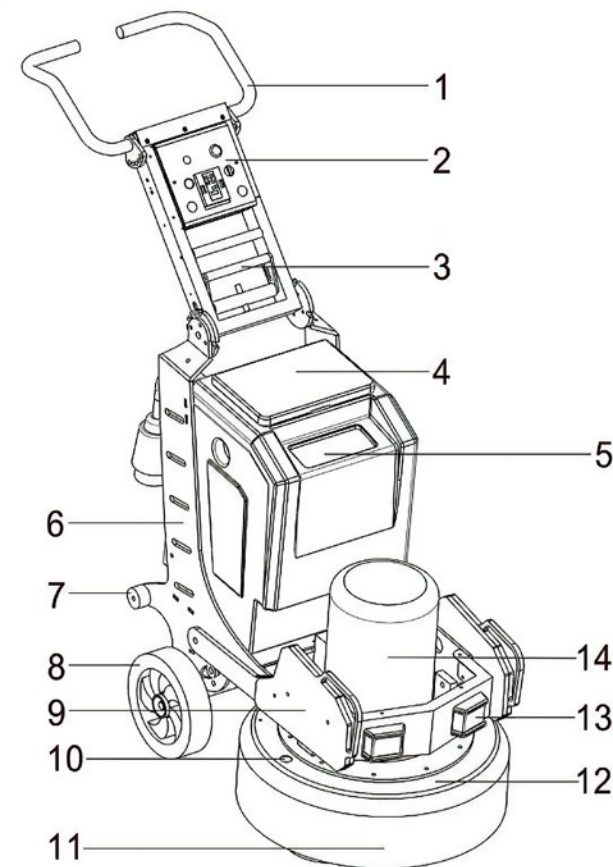
5d. Grinding Edges & Corners

The **SG600**'s 25" head cannot reach edges, corners, or areas within 3–4 inches of walls. Always plan to follow up with an edge grinder:

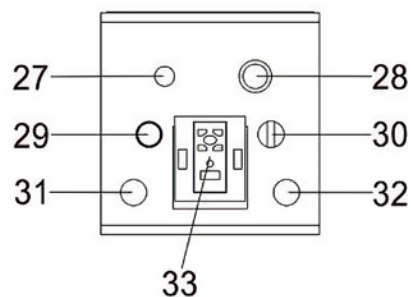
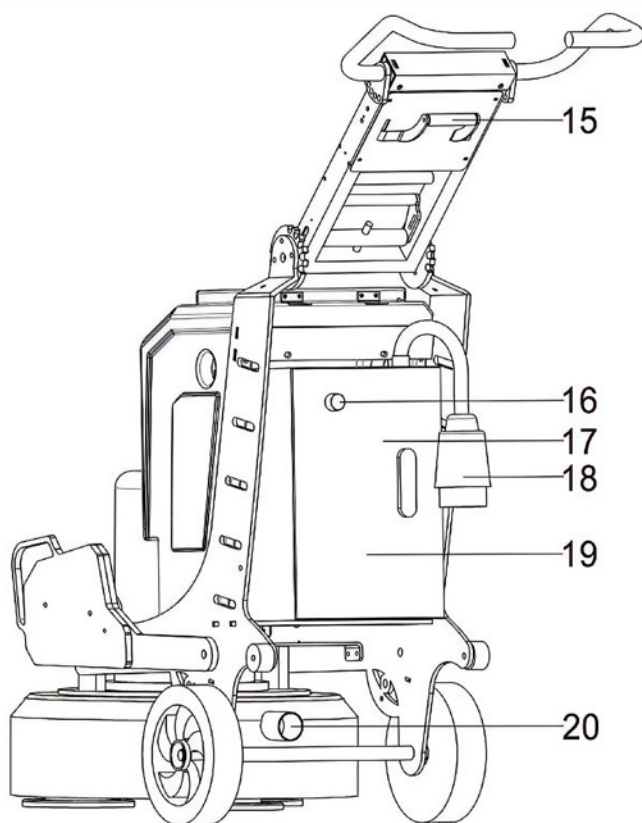
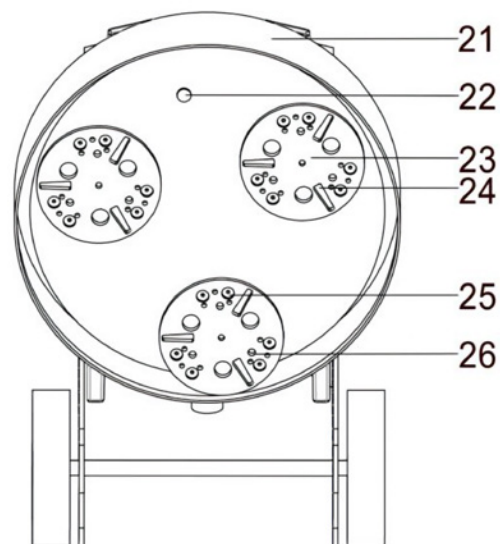
- Use a 5" or 7" angle grinder with a matching diamond cup wheel to grind within 1–2 inches of all walls
- Grind edges before or after the main field—most operators prefer to do edges first so the main grinder can overlap and blend the edge work
- Match your edge tooling grit to your main tooling grit for a consistent surface profile across the entire floor

5e. Powering Down

- Reduce RPM to its lowest setting before shutting off the machine
- Engage the power switch to off. Allow the heads to come to a complete stop before moving the machine
- Keep the dust collector running for 30-60 seconds after the grinder stops to capture remaining airborne dust
- Unplug the grinder from the power source before any tooling inspection or changes



- | | |
|------------------------|--------------------------------|
| 1. Handle | 18. Power plug |
| 2. Control panel | 19. Inverter |
| 3. Handle bar adjuster | 20. Dust vacuum port |
| 4. Tool box | 21. Gearbox cover |
| 5. Water tank | 22. Gear oil drain hole |
| 6. Frame | 23. Grinding plate |
| 7. Support wheel | 24. Diamond tools fixing hole |
| 8. Caster | 25. Magnet part |
| 9. Extra weight | 26. Diamond tools fixing screw |
| 10. Gear oil filler | 27. RPM adjustment |
| 11. Dust shroud | 28. Emergency stop |
| 12. Gearbox | 29. Power on |
| 13. LED light | 30. Forward/Reverse |
| 14. Motor | 31. Working light |
| 15. Handle adjuster | 32. Power light |
| 16. LED light ON/OFF | 33. Display screen |
| 17. Electrical cabinet | |



6. DUST COLLECTION & CLEANUP

Proper dust management is not optional—silica dust is a serious health hazard and OSHA's silica standard (29 CFR 1926.1153) requires engineering controls during concrete grinding.

- The **SG600** connects directly to a compatible industrial vacuum via the dust shroud port—always operate with this connection intact
- Check the vacuum filter before each use; a clogged filter reduces suction and allows fine silica dust to escape into the air
- Empty the vacuum collection bag when it reaches 2/3 full—overfilling reduces suction efficiency
- When disposing of grinding slurry or dry dust, bag the waste and dispose according to applicable local and state regulations
- After grinding is complete, HEPA vacuum the entire floor surface before mopping—never dry sweep, as this re-suspends silica dust

Silica Dust Warning

- Concrete grinding produces respirable crystalline silica. Prolonged exposure causes silicosis, an incurable and potentially fatal lung disease
- Always operate the dust collection system. Always wear an N95 or higher respirator. Ensure adequate ventilation in enclosed spaces.

7. AFTER GRINDING — PREPARING FOR SIMIRON COATINGS

A properly prepared surface is the foundation of a long-lasting coating system. After grinding, complete the following steps before applying any Simiron product:

- HEPA vacuum the entire floor to remove all grinding dust
- Inspect the surface profile—for most **Simiron** epoxy systems, the surface should feel like 80-grit sandpaper to the touch (CSP 3). Regrind areas that appear smooth or shiny
- Check for remaining cracks or spalls. Fill with **Simiron**'s recommended crack filler or polyurea joint filler and allow to fully cure before coating
- Wipe down a small test area with a clean white rag dampened with acetone or MEK—if the rag picks up dark residue, additional cleaning is required before coating
- Ensure the concrete moisture content is within your coating system's specified tolerance. Use a moisture meter or plastic sheet test before proceeding
- Apply **Simiron** primer or base coat within 24 hours of grinding. Freshly ground concrete is clean and reactive—delay allows re-contamination from foot traffic, dust, and airborne oils

QUALITY CHECK BEFORE YOU COAT

Do a water droplet test: place a few drops of clean water on the prepared surface. The water should absorb into the concrete within 30–60 seconds. If it beads up, the surface still has a contamination or porosity issue—do not coat until resolved.



8. ROUTINE MAINTENANCE

Proper maintenance extends machine life and ensures consistent grinding performance. Complete the following at the intervals shown.

INTERVAL	TASK
After each use	Inspect dust shroud for debris and clean the Velcro seal strip; wipe down exterior with a damp cloth; inspect power cord for damage; check diamond tooling for wear
Weekly	Inspect all three grinding head connections; clean the dust port inlet; lubricate handle pivot points per manufacturer spec
Monthly	Inspect motor brushes and drive belts for wear; verify all hardware is tight; inspect planetary gear housing for unusual wear patterns
As needed	Replace diamond tooling when segment height falls below 2mm; replace dust shroud rubber skirt when gaps appear; replace power cord if damaged

9. TROUBLESHOOTING

ISSUE	LIKELY CAUSE & SOLUTION
Diamond not cutting / glazed surface	Bond is too hard for the concrete. Switch to a softer bond diamond. You can also try running the machine over an abrasive stone or raking plate to re-expose the diamond
Tooling wearing too fast	Bond is too soft for the concrete. Switch to a harder bond diamond. Reduce RPM slightly to decrease friction heat
Uneven grinding pattern / chatter	One or more tooling segments is loose or unevenly worn. Power down, inspect all three heads, and replace any worn segments. Confirm walking speed is consistent
Excessive vibration	Tooling segment is missing or broken, or the grinding head is not fully seated. Power off immediately and inspect
Dust escaping shroud	Rubber shroud skirt is worn, torn, or has a gap. Power off and replace the skirt before continuing
Machine overheating / tripping breaker	Verify the correct 220V / 3-phase circuit is in use. Check that tooling is appropriate for the floor hardness. Allow 15-minute cool-down if tripped

TECHNICAL ASSISTANCE



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