# 14-inch (355mm) Brushless Variable Speed Metal Cold Cut Saw Instruction Manual

## Table of Contents

## 1. Product Overview

This machine is a 14-inch (355mm) bench-top brushless variable frequency metal cold cut saw, equipped with a permanent magnet brushless variable frequency motor and electronic speed regulation. It eliminates carbon brush wear and carbon dust, delivering an extended service life.

Fitted with carbide cold cutting saw blades, it generates low cutting temperature, minimal burrs and few sparks. It is suitable for blanking carbon steel, stainless steel, square tubes, round tubes, angle steel, channel steel, solid round steel and other metal profiles, widely applied in steel structure fabrication, hardware processing and construction site profile cutting.

Core Advantages

- Stepless / multi-speed variable frequency adjustment
- Constant torque output
- Intelligent overload protection
- No carbon brush replacement required
- Lower operating noise

## 2. Technical Specifications

- Saw Blade Diameter: 355mm (14 inch)
- Spindle Bore: 25.4mm
- Rated Voltage: AC220V/50Hz
- Rated Power: 3300–3600W Brushless Variable Frequency Motor
- Speed Range: 700–1300r/min (digital display adjustable)
- Maximum Cutting Capacity:

Square Tube: 110×110mm

Outer Diameter of Round Tube: Φ125mm

Angle Steel / Channel Steel: Within 100mm

- Cutting Angle: 0°–45° left & right bevel cutting
- Net Machine Weight: 39–43kg

- Drive Mode: Permanent Magnet Brushless Variable Frequency Controller
- Protection Functions: Overload protection, overheat protection, stall protection

## 3. Important Safety Warnings ⚠ Must Read Before Operation

1. Operators must wear safety goggles and earmuffs. Gloves, loose clothing and jewelry are prohibited; long hair shall be tied up.
2. Keep the working area clean. Remove oil stains and metal scraps, and keep flammable materials away.
3. Do not remove or modify the safety guard arbitrarily. Operation without the guard is forbidden.
4. Workpieces must be clamped tightly with the vise. Cutting by holding workpieces by hand is prohibited. Use auxiliary supports for short profiles.
5. Confirm the saw blade does not contact the workpiece before startup. Lower the cutting head evenly only after the rotational speed stabilizes.
6. Do not press down hard for forced cutting to avoid tooth breakage and controller overload shutdown.
7. If the saw blade jams, release the switch immediately. Wait until the blade stops completely before lifting the cutting head; do not restart under load.
8. Unplug the power cord before adjusting angles, replacing saw blades or repairing the machine.
9. Never use cracked, missing-tooth or deformed saw blades. The rotation direction marked on the blade must align with the arrow on the machine; reverse installation is forbidden.
10. Route the power cord away from the cutting zone to prevent cable damage and electric leakage.
11. Do not stand directly in the tangent direction of the saw blade to avoid injury from workpiece rebound.
12. Avoid long-time stall operation; frequent overload will damage the variable frequency controller.

## 4. Machine Structure Description

1. Operating Handle + Safety Start/Stop Switch
2. Cutting Head Assembly, Brushless Motor, Gear Box
3. Openable Safety Guard
4. Spindle Flange, Spindle Lock Button
5. Digital Display Speed Control Panel
6. Rotatable Base (0–45° Angle Scale Plate)
7. Quick Vise (Clamping Handwheel, Quick Lock Lever)
8. Machine Base, Shock-Absorbing Foot Pads
9. Cutting Depth Limit Adjustment Bolt

# 5. Installation & Commissioning

## 5.1 Machine Placement

Place the machine on a flat and sturdy workbench. For long-term fixed installation, lock the machine via the reserved holes on the base with bolts to reduce vibration displacement.

## 5.2 Bevel Angle Adjustment

1. Loosen the base angle locking handle.
2. Rotate the base to the target angle (0°–45°) and calibrate against the scale.
3. Tighten the handle and confirm no base shaking before cutting.

## 5.3 Workpiece Clamping

1. Fit the profile against the vise positioning baffle and align with the cutting marking line.
2. Turn the handwheel for pre-clamping, then flip the quick lock lever for firm fastening.
3. Install auxiliary supports at both ends of long profiles to prevent material sagging and blade extrusion.

## 5.4 Cutting Depth Limit

Adjust the limit bolt under the cutting head to control the minimum downward

stroke and prevent the saw blade from hitting the base.

## 6. Speed Adjustment & Standard Operating Procedures

Recommended Rotational Speed Reference

- Solid steel & thick-walled profiles: Low speed 700–900r/min
- Ordinary square tubes, round tubes & angle steel: Medium speed 900–1100r/min
- Thin-walled tubes & aluminum profiles: High speed 1100–1300r/min

Operation Steps

1. Full machine inspection: Check power cord, switches, safety guard, saw blade and vise for intact condition.
2. Clamp and lock the profile.
3. Connect power supply and set the appropriate speed via the control panel.
4. Press the safety switch to start the motor, run it without load for 30 seconds, and check for abnormal noise or severe vibration.
5. Lower the handle evenly and slowly for steady cutting; avoid impact pressing.
6. Slowly lift the cutting head after cutting completion and release the stop switch.
7. Wait until the saw blade stops rotating fully before loosening the vise and removing the workpiece.
8. Monitor machine temperature during long continuous operation. Stop and cool down if overheat protection triggers.

Tip: Spray cutting fluid when cutting stainless steel or thick profiles to reduce burrs and extend saw blade service life.

## 7. Saw Blade Replacement Steps (Power Cut-off Mandatory!)

1. Unplug the power cord.
2. Open the maintenance cover of the safety guard.
3. Press the spindle lock button to fix the spindle.

4. Use the matching wrench to loosen the spindle compression nut counterclockwise.
5. Remove the outer flange and old saw blade in sequence.
6. Clean metal scraps in the gap of the flange plate.
7. Install the new cold cut saw blade; ensure the rotation arrow on the blade matches the marking on the machine body.
8. Reinstall the outer flange and moderately tighten the spindle nut (do not over-tighten violently).
9. Release the spindle lock, rotate the saw blade manually to confirm no jamming, then restore the guard cover.

## 8. Daily Maintenance

After Daily Use

1. Clear metal scraps on the base, vise and safety guard with a brush.
2. Check the power cord for damage.
3. Apply a small amount of lubricant to the vise screw rod for smooth sliding.

Weekly Maintenance

1. Check tightness of all machine fixing bolts and cutting head hinges.
2. Clean heat dissipation vents of the motor and controller to avoid dust accumulation and overheating.
3. Inspect the gear box for oil leakage.

Regular Maintenance (Every 3 Months)

1. Calibrate the precision of the base angle scale.
2. Inspect spindle bearings; arrange maintenance promptly if abnormal noise occurs.
3. Check for loose wiring terminals on the control panel.

**⚠️ Cut off power supply during all maintenance work! Do not flush the motor and variable frequency controller directly with water.**

**Important Note: This machine adopts brushless motor structure without carbon brushes; regular carbon brush replacement is not required.**

## 9. Common Faults & Troubleshooting

| Fault Phenomenon | Possible Causes | Solutions |
|---|---|---|
| Motor fails to start | 1. Power supply disconnected<br>2. Damaged switch<br>3. Controller overheat protection activated | Check socket and cables; repair the switch; stop the machine and cool down before retry |
| Severe vibration after startup | 1. Deformed saw blade<br>2. Metal scraps stuck on flange clamping surface<br>3. Loose spindle accessories | Replace the saw blade; clean the flange; tighten the spindle nut |
| Abnormal cutting noise & frequent tooth breakage | 1. Excessive feed pressure<br>2. Worn saw blade<br>3. Unclamped workpiece | Slow down downward pressing speed; replace the saw blade; re-clamp the profile tightly |
| Excessive burrs on cutting surface | 1. Mismatched speed for material<br>2. Dull saw blade<br>3. Lack of cutting fluid | Adjust rotational speed; replace the saw blade; add cutting fluid |
| Machine stops mid-cut (protection triggered) | Excessive load/stalling, poor heat dissipation, unstable voltage | Reduce pressing force; clean heat dissipation channels; ensure stable 220V power supply |
| No display on control panel | Abnormal power supply, loose control wires | Inspect power cord and controller wiring |

## 10. Standard Accessories List

1. Spindle Lock Wrench ×1
2. Hex Key Set
3. Shock-Absorbing Foot Pads ×4
4. Instruction Manual & Product Certificate

## 11. Warranty Terms

1. The whole machine enjoys a 12-month warranty. Damage caused by man-made overload, falling impact, water ingress, unauthorized disassembly of the controller or circuit modification is not covered under warranty.
2. Consumable parts (saw blade, bearing, vise screw rod, sealing ring) are excluded from warranty coverage.
3. If non-original factory accessories are used, or damage to the variable frequency controller and motor is caused by illegal operation, the warranty will be automatically voided.
4. Disassembly of the brushless motor and variable frequency drive board by users is prohibited; unauthorized disassembly will invalidate the warranty immediately.