

Biesse Selco Beam Saw Squaring Fence Adjustment – Preventative Maintenance & Calibration SOP

1.0 Maintenance Objective & Frequency

The objective of this procedure is to verify and adjust the squaring fence on a Biesse Selco beam saw to ensure the fence is perpendicular to the saw blade within ± 0.1 mm over 1 meter. Proper squaring fence alignment prevents out-of-square panels, reduces material waste, and maintains cut quality. This PM is to be performed every 500 operating hours or quarterly, whichever comes first, and after any impact or collision involving the fence.

2.0 Lockout/Tagout (LOTO) & Safety

- Electrical Isolation: Disconnect main power to the beam saw at the disconnect switch and apply a personal lock and tag.
- Pneumatic Isolation: Close the main compressed air supply valve and bleed residual pressure from the pneumatic system using the manual bleed valve.
- Hydraulic Isolation: If equipped with hydraulic clamping, isolate the hydraulic pump and relieve system pressure per OEM instructions.
- Mandatory PPE: Safety glasses, steel-toed boots, cut-resistant gloves, and hearing protection.
- Additional Safety: Ensure the saw blade is fully stopped and locked out before any work near the cutting area.

3.0 Required Tools, Parts & Lubricants

- Precision machinist square (grade B or better, 300 mm or larger)
- 0.001 mm resolution dial indicator with magnetic base
- Feeler gauge set (0.05 mm to 1.0 mm)
- 10 mm combination wrench
- 13 mm combination wrench
- Torque wrench (range 10-50 Nm)
- Soft mallet (rubber or dead blow)
- Clean lint-free rags
- Isopropyl alcohol (for cleaning reference surfaces)
- Medium-strength threadlocker (e.g., Loctite 242)
- ServiceGrid PM checklist (paper or digital)

4.0 Step-by-Step Maintenance Procedure

1. Perform full LOTO as described in Section 2.0. Verify zero energy state by attempting to start the saw and actuate the pneumatic clamps.

2. Clean the squaring fence surface and the saw table reference edge using isopropyl alcohol and a lint-free rag to remove dust, resin, and debris.
3. Place the precision machinist square against the saw blade (or a known straight reference edge parallel to the blade) and the squaring fence. Check for visible gaps between the square and the fence along the full length of the square.
4. Using the feeler gauge, measure any gap between the square and the fence at the top and bottom of the fence. Record the gap size and location. The acceptable tolerance is ± 0.1 mm over 300 mm.
5. If the gap exceeds 0.1 mm, loosen the two M10 bolts securing the squaring fence bracket to the linear guide carriage using a 10 mm wrench. Do not remove the bolts completely.
6. Gently tap the fence bracket with a soft mallet to adjust the fence angle. Use the dial indicator with magnetic base on the saw table to monitor the fence movement. Adjust until the fence is within ± 0.05 mm of perpendicular over 300 mm.
7. Tighten the M10 bolts to 35 Nm using a torque wrench. Apply a drop of medium-strength threadlocker to the bolt threads before final tightening to prevent loosening from vibration.
8. Re-check the squareness using the machinist square and feeler gauge. If still out of tolerance, repeat steps 5-7. If the fence cannot be adjusted within tolerance, inspect the linear guides and carriage for wear or damage.
9. Inspect the fence clamping mechanism (pneumatic cylinders, linkage, and pads) for smooth operation and wear. Lubricate pivot points with light machine oil if necessary.
10. Remove all tools, rags, and debris from the work area. Verify that all fasteners are tight and no loose parts remain on the machine.

5.0 Verification & Return to Service

1. Remove LOTO devices and restore electrical and pneumatic power to the beam saw following the manufacturer's startup procedure.
2. Perform a dry cycle test (no material) to ensure the squaring fence moves freely and clamps properly through its full range of motion.
3. Cut a test panel (approximately 600 mm x 600 mm) from scrap material. Measure the diagonal lengths of the panel using a tape measure. The difference between diagonals must be ≤ 1 mm to confirm squareness.
4. If the test panel passes, record the adjustment values (initial gap, final gap, torque values) on the ServiceGrid PM work order. If the test fails, repeat the adjustment procedure.
5. Sign off on the PM work order in ServiceGrid, noting any parts replaced or additional observations. Update the maintenance history log.

Regulatory Disclaimer: This document is a generic maintenance template provided for educational and informational purposes only. It does not constitute professional engineering or reliability advice. The end-user assumes all liability for validating all step sequences, torque specs, and LOTO protocols against specific machinery OEM manuals before deployment to a live production floor.