Are Your Metallurgical Cuts Compromising Sample Integrity?

Heat-affected zones, distorted microstructures, and rejected samples cost labs time and credibility. The Kalamazoo K10WBT 10-inch enclosed bench top metallurgical wet saw was engineered to eliminate those problems—delivering pristine sections every time.

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Walk into any metallurgical lab, quality control department, or materials testing facility and you will find the same challenge: producing clean, undistorted cross-sections from metal samples without altering the very microstructure you need to examine.

Dry cutting generates extreme heat at the point of contact. That heat creates heat-affected zones that alter grain structure, mask defects, and produce misleading results under the microscope. For labs performing failure analysis, weld qualification, or incoming material inspection, a compromised section means compromised conclusions.

The cost is not just a ruined sample. It is the time to re-cut, the delay in reporting, and the risk of releasing material based on flawed data.

THE HIDDEN COST OF THERMAL DAMAGE

Every time an abrasive wheel contacts metal without adequate cooling, friction generates extreme temperatures at the cut interface. That heat does three things that directly undermine laboratory results.

First, it creates heat-affected zones that alter grain boundaries and phase structures near the cut surface—precisely the area a metallographer needs to examine. Second, it induces thermal stress and microcracking that can be misinterpreted as material defects. Third, it hardens the cut face, producing a surface that no longer represents the true condition of the material.

For labs performing critical work—aerospace alloy certification, weld procedure qualification, failure analysis—thermal artifacts are not minor inconveniences. They are data integrity issues.

> ***"Wet metallurgical cutting preserves sample integrity by eliminating heat-affected zones—delivering sections ready for microscopy without rework."***

The K10WBT enclosed bench top metallurgical wet saw. Made in the USA.

PRECISION ENGINEERED FOR THE LAB

The Kalamazoo K10WBT was designed specifically for metallurgical laboratories. Built around a 2-horsepower three-phase motor at 3,450 RPM, the K10WBT delivers consistent cutting power through a 10-inch abrasive wheel with a 5/8-inch left-hand spindle arbor, with optional 1.250-inch or 32mm arbors available.

The integrated recirculating coolant system, fed by a 6-gallon metal reservoir with heavy-duty pump, delivers continuous fluid through adjustable dual nozzles with flow control ball valves. It flushes swarf in real time, extends wheel life, and produces artifact-free sections ready for mounting without secondary preparation.

Fully enclosed all-steel construction contains coolant mist and debris completely. Observation windows let operators monitor the cut. An internal light illuminates the chamber and a removable 5-inch left side access panel accommodates long parts.

BUILT FOR THE METALLURGICAL LAB

Kalamazoo Industries has been manufacturing industrial cutting equipment in Kalamazoo, Michigan since 1960, and the K10WBT reflects decades of real-world feedback from working laboratories and production quality departments. The fully enclosed all-steel construction provides rigidity, vibration dampening, and complete containment of coolant and debris.

Magnetic electrical controls with 24-volt on/off push-pull buttons prevent unexpected restarts after power interruptions—a critical safety feature in a laboratory setting. A removable access panel provides convenient motor access for maintenance without disassembling the enclosure. The integrated wash-down hose simplifies cleanup between samples, preventing cross-contamination of metallographic specimens.

Optional door safety interlocks (part 710-052) add another layer of operator protection, preventing the saw from operating when the enclosure door is open.

WHO BENEFITS MOST?

Metallurgical laboratories performing routine sample preparation find the K10WBT transforms their sectioning workflow. Heat-free cuts mean samples go directly to mounting and polishing without surface preparation to remove thermal damage. Failure analysis labs depend on seeing the true microstructure of a failed component—not artifacts introduced by the sectioning process.

Weld testing facilities use the K10WBT to produce cross-sections for macro and micro examination that accurately represent the weld's as-deposited condition. Incoming material inspection departments rely on clean sections to verify that supplied material meets specification before it enters production.

Any lab sectioning difficult alloys—stainless steels, nickel-based superalloys, tool steels, or hardened materials—will find the recirculating coolant system is not a convenience but an absolute necessity for producing examinable specimens.

THE BOTTOM LINE ON WET SECTIONING

Investing in an enclosed wet metallurgical saw is not just about making better cuts, although it certainly does that. It is about removing an entire layer of uncertainty from your metallographic process. Eliminate thermal artifacts and you eliminate the need to question whether what you see under the microscope is real or introduced by sample preparation.

Extend wheel life and you reduce consumable costs and changeover downtime. Contain coolant and debris within the enclosure and you maintain a clean, professional laboratory environment. Produce sections ready for mounting right off the saw and you compress your total sample preparation time, moving more specimens through the lab.

The K10WBT is a purpose-built laboratory instrument—not a repurposed shop saw—and its enclosed all-steel construction, integrated coolant system, dual vise workholding, and T-slot table reflect that. For labs absorbing the hidden costs of thermal damage and rework, the payback period is measured in weeks rather than months.

Every K10WBT is manufactured in Kalamazoo, Michigan and backed by factory-direct technical support, a complete replacement parts inventory, and responsive service from the people who built your machine. When a laboratory saw goes down, sample preparation stops—Kalamazoo understands that.

Ready for Pristine Metallurgical Sections?

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K10WBT SPECIFICATIONS

Motor	2 HP, 3PH, 3450 RPM	**Solids Capacity**	1.5" diameter
Spindle Speed	3,450 RPM	**Pipe Capacity**	2.5" diameter
Spindle Arbor	5/8" LH (opt: 1.25", 32mm)	**Wheel Size**	Up to 10"
Coolant Tank	6 gallons	**Voltage Options**	3PH 230V / 460V
Construction	Enclosed all-steel	**Vises**	Two 2-7/16" toolmaker's
Table	T-slot	**Weight**	500 lbs crated (w/o stand)
Origin	Made in USA	**Price**	$7,250.00