

Scrap Sorting with Handheld LIBS - A Major Disruptive Force?

Radically Lower Maintenance Costs

Handheld LIBS represents a potentially huge disruptive force for alloy sorting. No better example exists than maintenance costs compared to X-ray guns. Consider first X-ray tubes, then detectors. When a tube fails in an X-ray gun, usually the entire X-ray tube must be replaced at a cost of \$6,000 to \$10,000 depending on the X-ray gun manufacturer.

The SciAps LIBZ laser is a different story. It's a proprietary laser, designed specifically for handheld analyzers, not purchased "off the shelf."

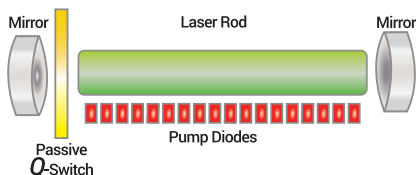


Fig. 1 Z100 laser system

The SciAps proprietary laser (Fig. 1) is highly modular, and thus designed for component-level repair. There are four significant components in terms of service costs: A glass rod, reflecting mirrors, pump diodes, and a passive Q-switch. A failed component can be replaced. Typical repair costs are shown in Table 1. Repair costs range from a few hundred dollars to \$1,000 at most--unless of course you've run it over with a truck.

Table 1: Component Repair Costs

Component	Repair \$(est.)
Laser rod	\$550
Pump diodes	\$1100 (rarely fail)
Q-switch	\$420
Mirrors	<\$100

LIBZ repair is thousands of dollars less compared to other technologies.

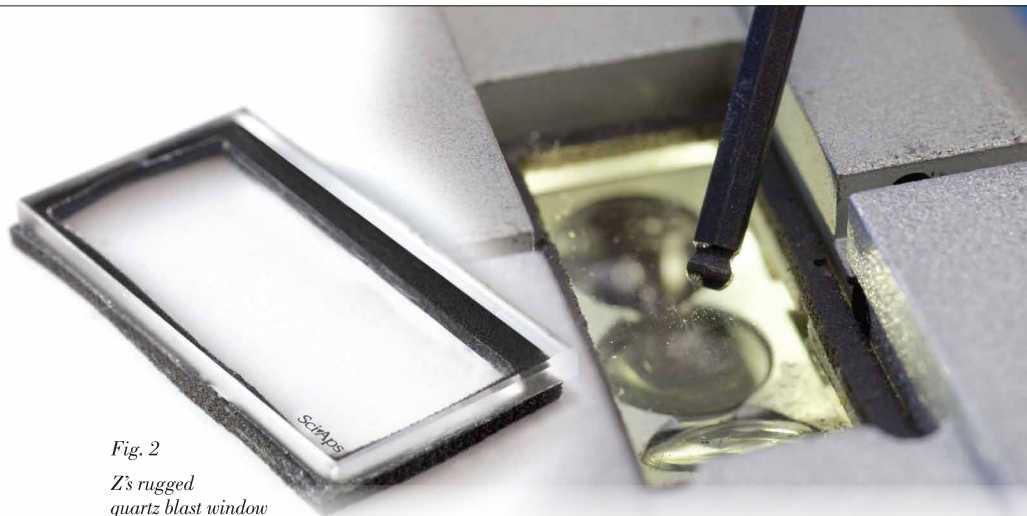


Fig. 2
Z's rugged quartz blast window

see video  <http://goo.gl/ohFYb9>

Spectrometer Versus X-ray Detector – What's the Difference?

X-ray guns use a silicon detector located close to the front aperture. The silicon is in a vacuum, covered with a very thin beryllium window. Even gentle pressure--the touch of an operator's finger to a piece of turning--can pop the Be window and destroy the detector. The repair typically costs \$8,000 to \$10,000.


A LIBZ spectrometer functions differently. LIBS measures optical, UV and infrared light. The window is instead a thick quartz barrier--think baking-dish tough. Light created by the plasma travels through the quartz, along fiber optics into a spectrometer. You can jam turnings or metal pieces inside the analyzer all day long and not damage the analyzer.

SciAps makes their own spectrometers as well. While it's hard to imagine a big enough shock to damage the spectrometer, the maximum repairs are likely under \$500. Why is the Z-100 less expensive to own and operate? Because SciAps makes their own lasers and spectrometers--the core components--rather than purchasing them, and those components have been designed from the ground up for handheld metals analysis.



Key questions to ask: How much to replace a drift detector? How much to replace an X-ray tube? For LIBS -- do you make your own laser? Spectrometer? In many cases cost of ownership exceeds purchase cost after 1-2 years. Find out!

See the Z in action and a candid interview @ Wentworth Scrap Metals, Portsmouth, NH

see video  <http://goo.gl/ohFYb9>



For more information contact:
SciAps Inc., 2 Constitution Way,
Woburn, MA 01801; (339) 927-9455;
sales@sciaps.com, or www.sciaps.com.

