

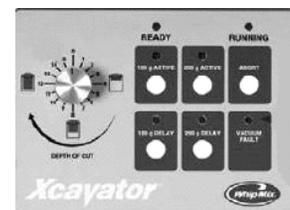
**Xcavator Automated Divesting Unit (Whip Mix Corporation)
(Project #08-10) (9/10)**



The Xcavator Automated Divesting Unit is a dental laboratory divesting machine marketed to increase laboratory efficiency by automatically divesting pressed ceramic restorations. The Xcavator uses nozzle directed, 50 micron glass beads powered with compressed air to erode the investment material away from the pressed ceramic much like that of a microblaster. The investment ring (hot or cold) is placed in the chamber and the chamber door is closed. Next, the depth-of-cut selector knob is positioned appropriately followed by unit activation by pressing the corresponding start button. This is followed by the arm containing the nozzle moving into position over the investment ring while the spindle containing the ring begins to rotate. Finally, the compressed stream of glass beads then erodes the investment material away from the restoration in a circular pattern as the nozzle arm incrementally moves toward the center of the investment ring. The procedure ends when approximately 95% of the investment material is removed from around the casting.



The Xcavator's control panel consists of five, LED-annotated, cycle selection buttons, a depth-of-cut selector dial, two LED unit status lights ("ready" and "running"), and a vacuum fault indicator light. The cycle selection buttons allow the operator to choose between a 100-gram cycle, 200-gram cycle, 100-gram delayed cycle, 200-gram delayed cycle, and cycle abort. The Xcavator's chamber accommodates both 100 and 200 gram rings and is furnished with corresponding chuck assemblies. The unit's rear located, adjustable air regulator allows a 35 PSI (minimum) compressed air source connection via a standard 1/8" National Pipe Thread (NPT) inlet. A moisture collection bowl is underneath the compressed air inlet to remove any residual moisture that could be in the air lines. An exhaust port is also located on the Xcavator's back panel on the top left side, where a vacuum system must be connected to prevent small particulate matter generated during divesting from escaping into the laboratory. The unit's glass bead reservoir is located on the right side and includes a strainer to eliminate bead clumps that could cause the Xcavator to malfunction. A five-watt heater is also provided that should be used in the glass bead storage container. This heater prevents excess moisture from accumulating that could cause the 50-micron beads to clump. The Xcavator weighs 29 lbs, has external dimensions of 19.25"H x 14.5"W x 15.5"D, has a three-year warranty and is available in different power configurations to include 100V 60Hz, 115-120V 60Hz, and 208-240V 50Hz.



Manufacturer:
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Suggested Retail Price:

\$2,620.75 Xcavator Automated Divesting Unit (Item #09800)

Government Price:

\$1,988.45 Xcavator Automated Divesting Unit (Item #09800)

ADVANTAGES:

- + Independently divests ceramics allowing personnel to perform other tasks
- + Major time-saver compared to manual method
- + Reduces remakes
- + Easy and intuitive operation
- + Delay start program allows divestment of hot rings almost immediately
- + Compressed air easy to connect and adjust
- + Vacuum easy to connect and adjust
- + Helpful instructional videos located on the Whip Mix Web site
- + Small footprint allows easy placement

DISADVANTAGES:

- Strongly recommended to use Whip Mix brand glass beads
- Very moisture sensitive
- Alert feature didn't work on one of the units evaluated
- Excessive housekeeping required due to glass beads and investment leaking from unit
- Bead storage must be located near electrical source due to bead storage heating requirement
- Precise adherence to instructions is required to prevent unit clogging
- Requires a 35 PSI (minimum) compressed air source
- Requires a vacuum source

SUMMARY AND CONCLUSIONS:

The Whip Mix Xcavator Automatic Divesting Unit is an inaugural and unique automatic investment removal machine for use with pressed ceramics. The Xcavator is designed to replace the labor intensive, manual removal of ceramic investments and is designed around a method of precision robotics and glass bead air abrasion. Evaluators reported that the Xcavator was simple to set up and connect to the required vacuum and compressed air sources, while the unit's touchpad control panel was easy to use and understand. The laboratory users thought that the Xcavator's small size allowed it to be placed in most work spaces. Evaluators also appreciated the efficiency of the Xcavator's delay-start feature that allows the placement of hot rings directly into the unit, eliminating lost time required for cooling with the manual method. Evaluators reported that the Xcavator provided a huge time savings compared over the manual method that ranged from 44 to 54 minutes per procedure, depending on ceramic ring size. The Xcavator's potential to increase laboratory ceramic efficiency led to it enthusiastically being recommended by a majority of the users. However, potential users must be aware that successful use requires precise and exact adherence to manufacturer instructions. Any variation in use and maintenance was found to result in malfunction of the unit's bead flow; users must be familiar with the Xcavator use and maintenance manual. Furthermore, particulate leaking from around the chamber door was found to require excessive housekeeping. The **Xcavator Automatic Divesting Unit** is rated **Acceptable** for use in US Air Force dental facilities.