



# Impact Summary

## Auto-Burn™

### Automatic Ice Melting Units



PATENTED  
MODEL AB-BSM1



PATENTED  
MODEL AB-CH1

#### Product description:

Auto-Burn™ modular ice melting units automate the ice-melting process by delivering a hot water supply to ice bins. Each version can be attached to new or existing ice bins. Additionally, model AB-BSM1 can be added to dump sinks in place of traditional faucets and faucet handles.

Auto-Burn™ efficiently melts ice by creating a whirlpool that accelerates the melting process versus manually melting ice (which is standard daily industry best practice to keep ice bins clean).

By accelerating the ice-melting process, Auto-Burn™ saves water, labor cost, and improves sanitation.

#### Industry applications:

Restaurants (fast food, fast casual, fine dining), cocktail bars, specialty coffee shops, bubble tea shops, grocery stores, c-stores, and institutional foodservice (hospitals, blood banks, schools, military, and prisons).

#### Purpose of this study:

Testing was conducted to quantify the impact of Auto-Burn™ in three key operational areas:

1. **Efficiency Impact** - labor-savings due to increased efficiency in ice-melting
2. **Environmental Impact** - water and energy savings
3. **ROI Impact**- savings realized over time

#### Method used in this study:

In-house testing was conducted to measure time and water usage of Auto-Burn™ compared to the manual process of melting ice (by filling containers with hot water from running faucets, and pouring that hot water over the ice until it is completely melted).

Basic data was extrapolated to show differences in variables such as water usage and cost savings over time.

#### Contents:

**Efficiency Impact Summary - Auto-Burn™ Ice Melters.....pg. 2, 3**

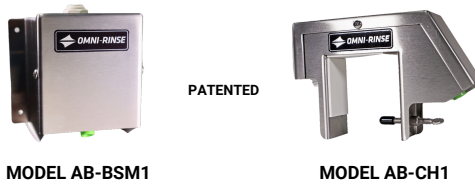
**Environmental Impact Summary - Auto-Burn™ Ice Melters.....pg. 4, 5**

**ROI Impact Summary - Auto-Burn™ Ice Melters.....pg. 6, 7**



# Efficiency Impact Summary

## Auto-Burn™ Ice-Melters



The data below compares manual ice melting versus automatic ice melting (filling pitchers with faucets to melt ice versus using Auto-Burn™ to melt ice).

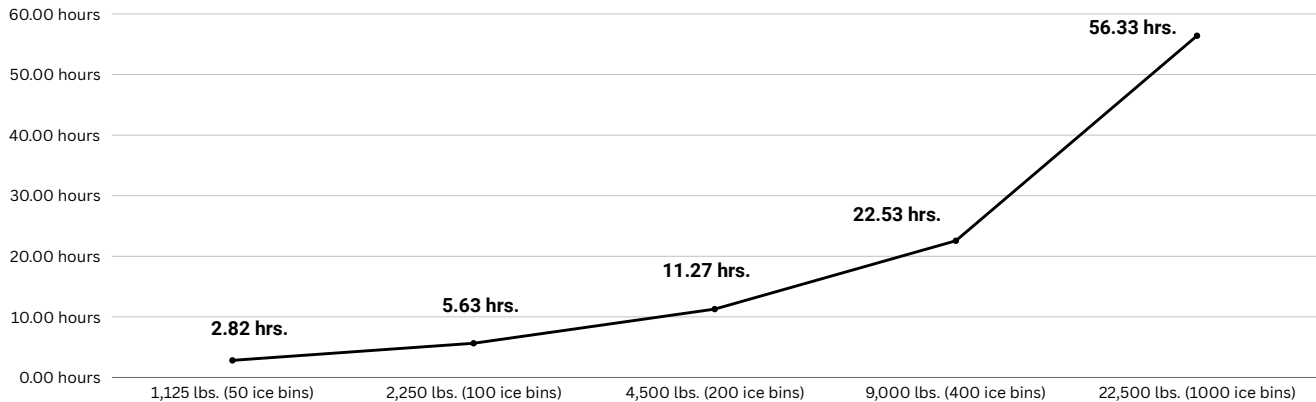
**Figure 1: Time Savings Test**

- total volume of ice melted: 22.5 lbs.
- 0.50 gallon water pitchers used for manual melting
- building water pressure: 48 psi.

|                                     | Melt Time<br>(22.5 lbs. of ice) | User Engagement Time     |
|-------------------------------------|---------------------------------|--------------------------|
| <b>Manual Ice Melt<br/>(Faucet)</b> | 3.45 mins.                      | 3.45 mins.               |
| <b>Auto-Burn™</b>                   | 2.67 mins.<br>(22.61% less)     | 4 secs.<br>(98.07% less) |

**Figure 1A: User Engagement Time-Savings Extrapolation**

- each ice bin is considered partially-full (22.5 lbs. of ice) to simulate average volumes of daily melting per ice bin
- emergency melting for contaminated ice events not included
- time-savings based on Fig. 1 (3.45 mins - 4 seconds = 3.38 total minutes saved per ice bin)

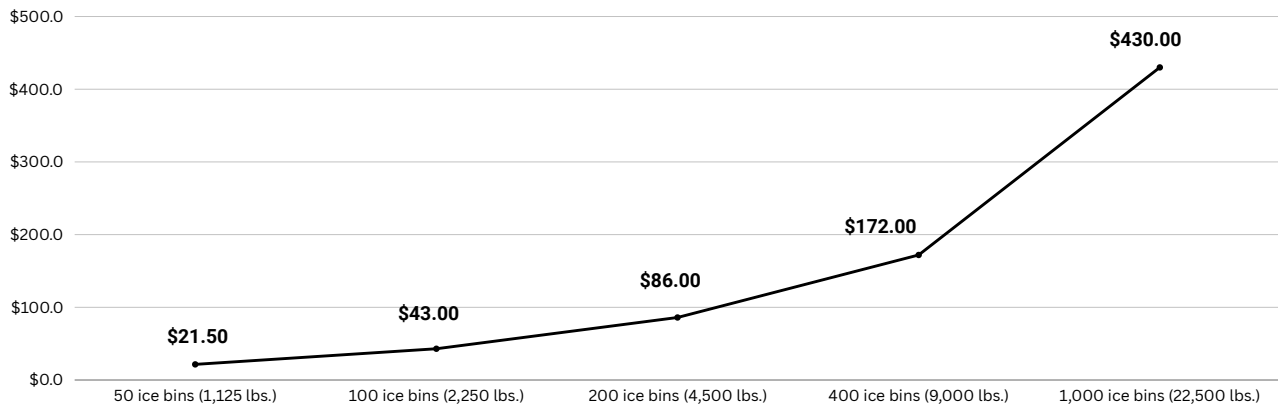


**Figure 2: Operational Cost / Savings Analysis (per 22.5 lbs. of ice melted)**

|   | <b>Water Usage<br/>(gallons)</b> | <b>Water Cost<br/>(\$0.005 / gal.)</b> | <b>Engagement Time</b>            | <b>Labor Cost<br/>(@ \$7.00/hr.)</b> | <b>Total Water +<br/>Labor Cost</b> |
|---|----------------------------------|--|-----------------------------------|--------------------------------------|-------------------------------------|
| <b>Manual Ice<br/>Melt<br/>(Faucet)</b> | 15.32 gals.                      | \$0.077                                | 3.45 mins.                        | \$0.40                               | \$0.48                              |
| <b>Auto-Burn™</b>                       | 8.60 gals.<br><i>(44% less)</i>  | \$0.043<br><i>(44% less)</i>           | 4 secs.<br><i>(98.07% faster)</i> | \$0.01<br><i>(97.50% less)</i>       | \$0.05<br><i>(89.58% less)</i>      |

**Figure 2A: Cost Savings Extrapolation: Water + Labor Costs Saved Over Time**

- each ice bin is considered partially-full (22.5 lbs. of ice) to simulate average volumes of daily melting per ice bin
- emergency melting for contaminated ice events not included
- cost-savings based on Fig. 2 (Total Water + Labor Cost \$0.48 - \$0.05 = \$0.43 total savings)



**Summary:**

**Auto-Burn™ decreases total melt time by 22.61%.** (see pg. 2, Fig. 1)

**Auto-Burn™ requires 98.07% less user engagement time.** (see pg. 2, Fig. 1 and above, Fig. 2)

98.07% less user engagement time allows staff to start or return to other tasks more quickly, increasing overall productivity.

Auto-Burn™ uses 44% less water. (see above, Fig 2)

Auto-Burn™ results in a total water and labor cost savings of 89.58%. (see above, Fig 2)

Auto-Burn™ automation allows for simultaneous continuity of drink production and ice melting when ice is contaminated by broken glass, debris, or other foreign objects during service.



# Environmental Impact Summary

## Auto-Burn™ Ice-Melters



MODEL AB-BSM1

PATENTED



MODEL AB-CH1

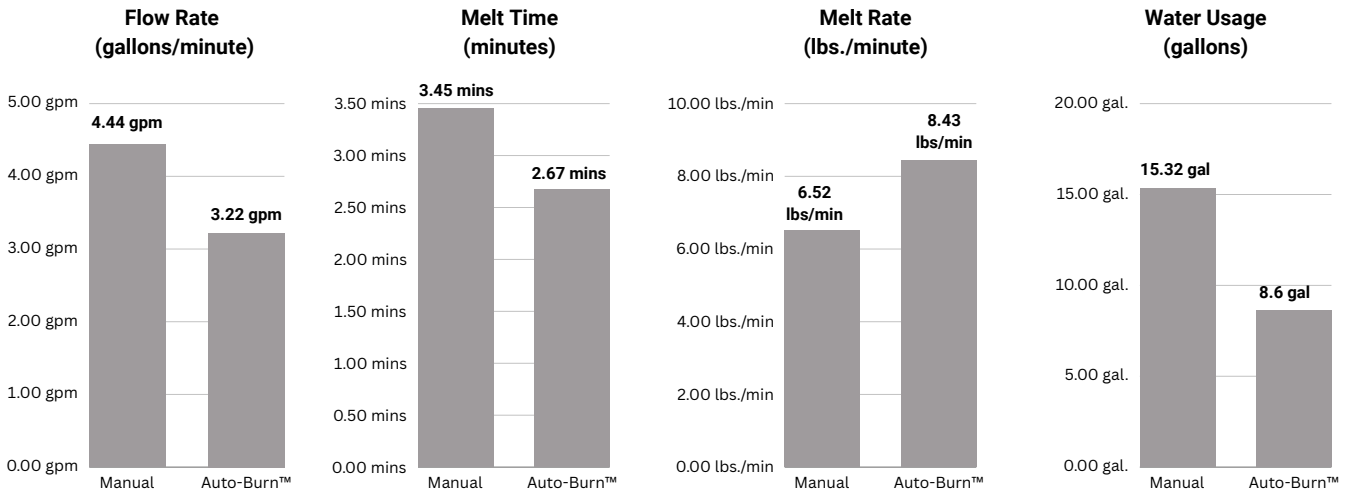
The data below compares manual ice melting versus automatic ice melting (filling pitchers with faucets to melt ice versus using Auto-Burn™ to melt ice).

**Fig. 1: Water Efficiency Comparison**

- total volume of ice melted: 22.5 lbs.
- 0.50 gallon water pitchers used for manual melting
- building water pressure: 48 psi

|                                   | Nozzle Diameter<br>(millimeters)   | Flow Rate<br>(gallons/minute)    | Melt Time<br>(minutes)             | Melt Rate<br>(lbs./minute)                 | Water Usage<br>(gallons)                |
|-----------------------------------|------------------------------------|----------------------------------|------------------------------------|--|---|
| <b>Faucet<br/>(manual)</b>        | 14.70 mm                           | 4.44 gpm                         | 3.45 mins.                         | 6.52 lbs./min.                             | 15.32 gal.                              |
| <b>Auto-Burn™<br/>(automatic)</b> | 4.40 mm<br><i>(70.07% smaller)</i> | 3.22 gpm<br><i>(27.48% less)</i> | 2.67 mins.<br><i>(22.61% Less)</i> | 8.43 lbs./min.<br><i>(29.29% increase)</i> | 8.60 gal.<br><b><i>(43.9% less)</i></b> |

**Fig. 1A: Water Efficiency Comparison**

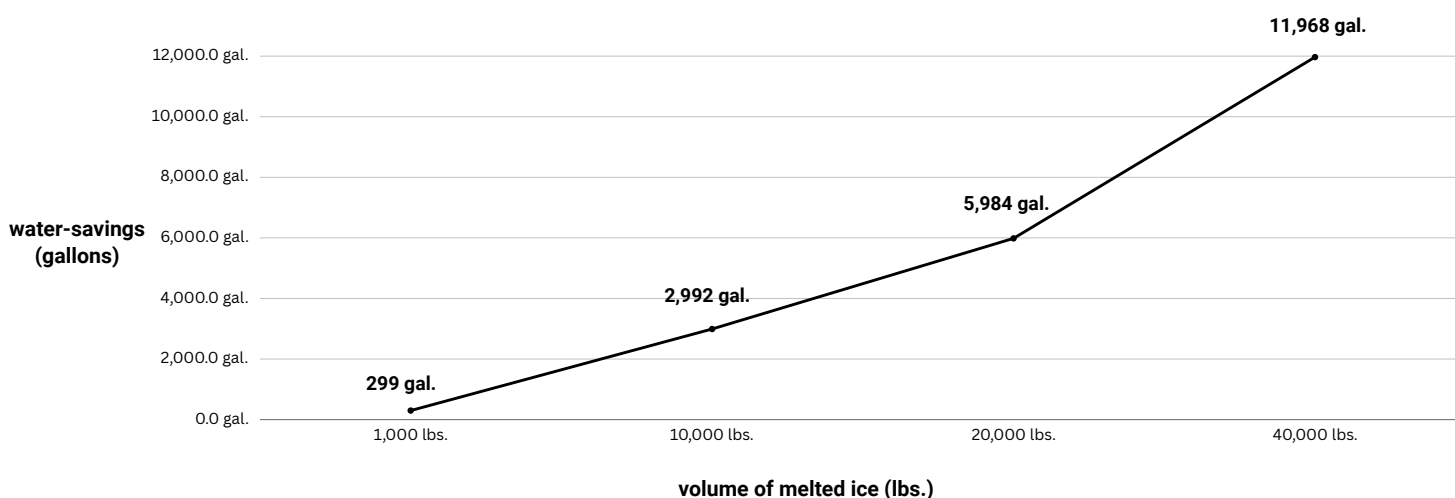


**Fig. 2: Example: Water Savings Comparison per 100 lbs. of Ice Melted**

|                                   | <b>Melt Rate<br/>(lbs. of ice/minute)</b>  | <b>Melt Time<br/>(minutes)</b>        | <b>Water Usage<br/>(gallons)</b>           |
|-----------------------------------|--|---------------------------------------|--|
| <b>Faucet<br/>(manual)</b>        | 6.52 lbs./min.                             | 15.34 mins.                           | 68.11 gallons                              |
| <b>Auto-Burn™<br/>(automatic)</b> | 8.43 lbs./min.<br><i>(29.29% increase)</i> | 11.86 mins.<br><i>(22.69% faster)</i> | 38.19 gallons<br><b>(43.9% less water)</b> |

**Fig. 2A: Water Savings Extrapolation**

The graph below shows water savings with Auto-Burn™ per volume of ice melted (29.92 gallons saved per 100 lbs. of ice).



**Chemical Usage:**

None. No added chemicals required.

**Energy Usage:**

None. Operates on water pressure only.

**Summary:**

Auto-Burn™ flow rate is 27.48% less than a standard faucet. (see pg. 4, Fig. 1)

Auto-Burn™ melt rate is 29.29% more efficient than manual ice melting. (see pg. 4, Fig. 1 and above, Fig. 2)

A 27.48% lower flow rate and a 29.29% faster melt rate results in a **43.9% total savings in water usage when using Auto-Burn™ to melt ice.** (see pg. 4, Fig. 1 and above, Fig. 2)

Automatic ice melting eliminates the common practice of running faucets for manual ice melting—a major source of water wastage in the hospitality industry.

Substituting Auto-Burn™ for faucets in dump sinks saves water and prevents the use of dump sinks for hand washing—a common health code violation.

Automatic ice melting allows for more efficient allocation of labor, resulting in reduced labor costs.

Auto-Burn™ does not require the use of chemicals or electricity.



# ROI Impact Summary Auto-Burn™ Ice-Melters



MODEL AB-BSM1

PATENTED



MODEL AB-CH1

## Cost of Ownership Extrapolations

- Auto-Burn™ Initial Investment: \$250
- Labor Rate: \$7.00 / hour
- Ice melting frequency: 365 days per year
- Average time to manually melt ice: 3.45 mins (see pg. 4, Fig. 1)

### Labor cost to melt ice manually each day @ \$7.00 / hour:

$\$7.00 / 60 \text{ minutes} = \$0.117 \text{ per minute} \times 3.45 \text{ mins.} = \$0.40 \text{ per day, per ice bin}$

### Amortized cost to use Auto-Burn™ every day:

formula:  $\$250 / (365 \text{ days} \times \text{___ years}) = \$\text{___ per day}$

example: Amortized cost to use Auto-Burn™ every day for 3 years is \$0.23 per day  
 $\$250 / (365 \text{ days} \times 3 \text{ years}) = \$0.23 \text{ per day}$

example: Amortized cost to use Auto-Burn™ every day for 5 years is \$0.14 per day  
 $\$250 / (365 \text{ days} \times 5 \text{ years}) = \$0.14 \text{ per day}$

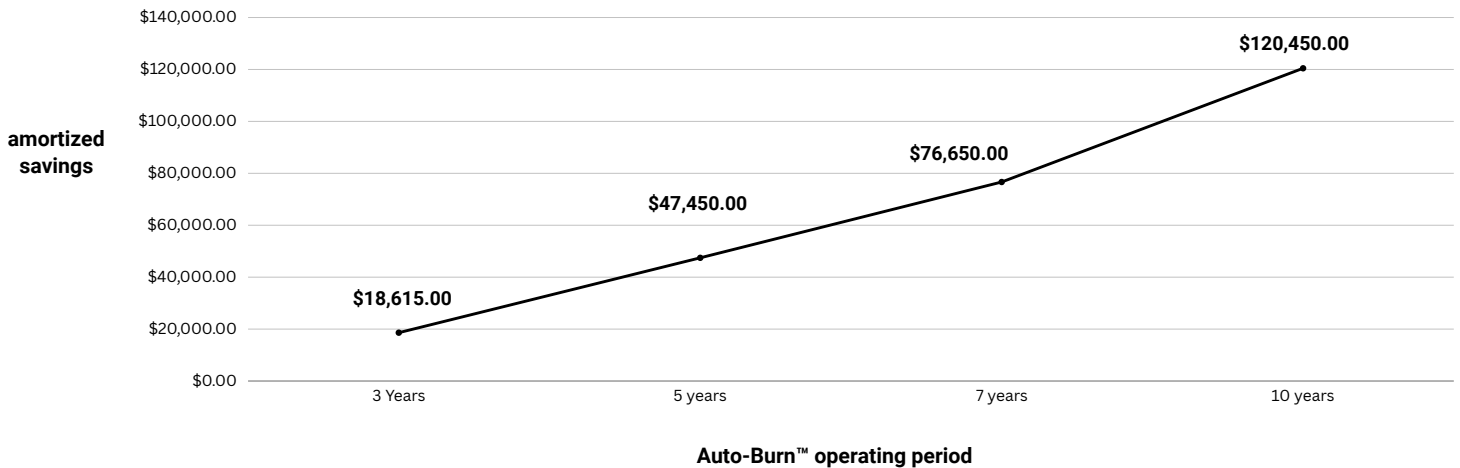
example: Amortized cost to use Auto-Burn™ every day for 7 years is \$0.10 per day  
 $\$250 / (365 \text{ days} \times 7 \text{ years}) = \$0.10 \text{ per day}$

example: Amortized cost to use Auto-Burn™ every day for 10 years is \$0.07 per day  
 $\$250 / (365 \text{ days} \times 10 \text{ years}) = \$0.07 \text{ per day}$

**Fig. 1: Operational Cost Comparison: Manual Ice Melting vs. Auto- Burn™**

| Time Period | Manual Labor Cost Per Day (per ice bin) | Auto-Burn™ Cost Per Day (per ice bin) | Savings Per Day \$ and % (per ice bin) | Savings Over Time Period (per ice bin) | Labor Savings Per 100 Ice Bins |
|-------------|---|---------------------------------------|--|--|--------------------------------|
| 3 Years     | \$0.40                                  | \$0.23                                | \$0.17 / 42.5%                         | \$186.15                               | \$18,615.00                    |
| 5 Years     | \$0.40                                  | \$0.14                                | \$0.26 / 65%                           | \$474.50                               | \$47,450.00                    |
| 7 years     | \$0.40                                  | \$0.10                                | \$0.30 / 75%                           | \$766.50                               | \$76,650.00                    |
| 10 years    | \$0.40                                  | \$0.07                                | \$0.33 / 82.5%                         | \$1,204.50                             | \$120,450.00                   |

**Fig. 1A: Cost-Savings Extrapolation Per 100 Ice Bins**



**Summary:**

**Auto-Burn™ saves 42.5% - 82.5% vs. manual ice melting over a 3 - 10 year period.** (see above, Fig. 1)

**Auto-Burn™ saves \$18,615.00 - \$120,450.00 in labor costs between a 3 - 10 year period enterprise-wide per 100 ice bins.** (see above, Figs. 1 and 1A)

Automatic ice melting eliminates the common practice of running faucets for manual ice melting—a major source of water wastage in the hospitality industry.

Automatic ice melting allows for more efficient allocation of labor, resulting in reduced labor costs.

Auto-Burn™ does not require the use of chemicals or electricity.