

THE TECHNICAL SIDE OF CHILL

All chill boxes were tested simultaneously in an indoor area with a constant temperature of 75 F. Power was provided to each cooler using the DC cable supplied by each maker. Our power source was an Astron VS-70M regulated to 12.8 volts DC and monitored with a Sperry DM-4100A digital voltmeter.

We did not test the units using AC power. DC-amp draw measurements were taken with a Fluke 336 clamp-on ammeter. We recorded a reading at start-up and then took several measurements over the following three hours as the boxes cooled. Noise levels were measured in decibels using a Radio Shack sound level meter held 6 inches from the operating fan.

Temperature measurements were taken using a digital Fluke 116 multimeter equipped with a thermocouple temperature attachment. Testers placed the sensor—a long, thin wire with the temperature probe at the end—as near as possible to the center of the cooler's interior. We opened the lid only enough to get the wire inside, usually no more than a 1/16 of an inch. Once we had the

reading, we opened the lid/door for a second and read the Taylor 5924 analog refrigerator/freezer thermometer we had placed inside each unit as backup. As long as the readings were comparable—and they were on all units—we recorded the digital reading.

We took temperature readings at one hour and again at two hours. After each two-hour reading, we opened the lid and placed a 1-gallon plastic jug filled with 100-degree water into the box. Three hours later, we took another reading to see how well the boxes had cooled with the water inside. Once all readings were recorded, we let the coolers run for 16 hours. We measured the temperatures again, then shut off the electrical power. Five hours later, we recorded the temperature again to check insulation.

For our ease-of-loading and capacity test, we packed each cooler with identical amounts of food and drink: (2) six-packs of canned soda, (1) six-pack of bottled beer, (1) half-gallon of lemonade, (1) half-gallon of ice tea, (1) half-pound package of sliced turkey, (1) 1½-pound boneless ham, and (1)



Testers used a temperature sensor, called a thermocouple, to track how well each unit kept its cool over the course of 26 hours.

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half-pound block of cheese. We rated each product based on performance, convenience, warranty, power usage, price, and load capabilities.