

# Test report for the Indel B fridge

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All tests performed by Graham Jackson

## Summary

The Indel B is a portable fridge/ freezer run by a Danfoss compressor. Looking at the test data I would rank this fridge solidly next to the Engel and the ARB. Compressor control is not as good as the National Luna, but is better than the Whynter. Value and performance of this fridge makes it a good competitor for the ARB and Engel, but does not match the sheer power of the National Luna.

## Test procedures:

### Speed and insulation

This test measured cool-down speed as well as the efficiency of the insulation to keep the interior cool when the power is off. We suspended a thermometer as close to the center of the cabinet as possible and, leaving the fridge empty, we set the control to the lowest temperature and cooled the fridge as fast as possible for 45 minutes taking temperature measurements every five minutes. The fridge was set to 'MAX' mode for the cool down portion of this test. At 45 minutes we switched the fridge off and allowed it to come back to 10°C collecting temperatures every five minutes. The results of this test are shown on Chart 1, which also shows the results for the fridges in the *Overland Journal* fridge review.

### Workhorse cool-down

In order to test the power draw of the fridge under harsh use conditions we loaded each with the maximum number of beer cans possible, and set them to cool down to 7°C (44.6°F) from ambient temperature. The thermometer was suspended in liquid as close to the center of the cabinet as possible. Instead of cooling as fast as possible we just set the target to 7°C, giving a true measure of how long it takes to get to the target temperature, and mimicking how people will likely use the fridge. The test was run for six hours, and for the first and last two hours we collected temperature and amp draw readings every 30 minutes. We used a kilowatt to measure total power consumed by the fridge over the six hour period which was recorded in kilo-watt hours and converted to amp-hours for applicability here. Of interest are the actual achieved temperature and the total power draw, as well as the amp-hours consumed per degree temperature change.

### Glutton or Miser

More important than power consumed to cool down is power consumed to maintain a set temperature. For this test we measured the power consumed by the fridge while maintaining a set temperature for two hours. The ambient temperature during the *Overland Journal* test was 33°C (91.4°F), and for the Indel B it was 22.8°C (73.4°F).

### Noise

For this test we measured the noise produced by each fridge with the compressor and fan on. The meter was held six inches from the compressor cooling vents and a peak and an average decibel sound pressure level was recorded.

# Test results:

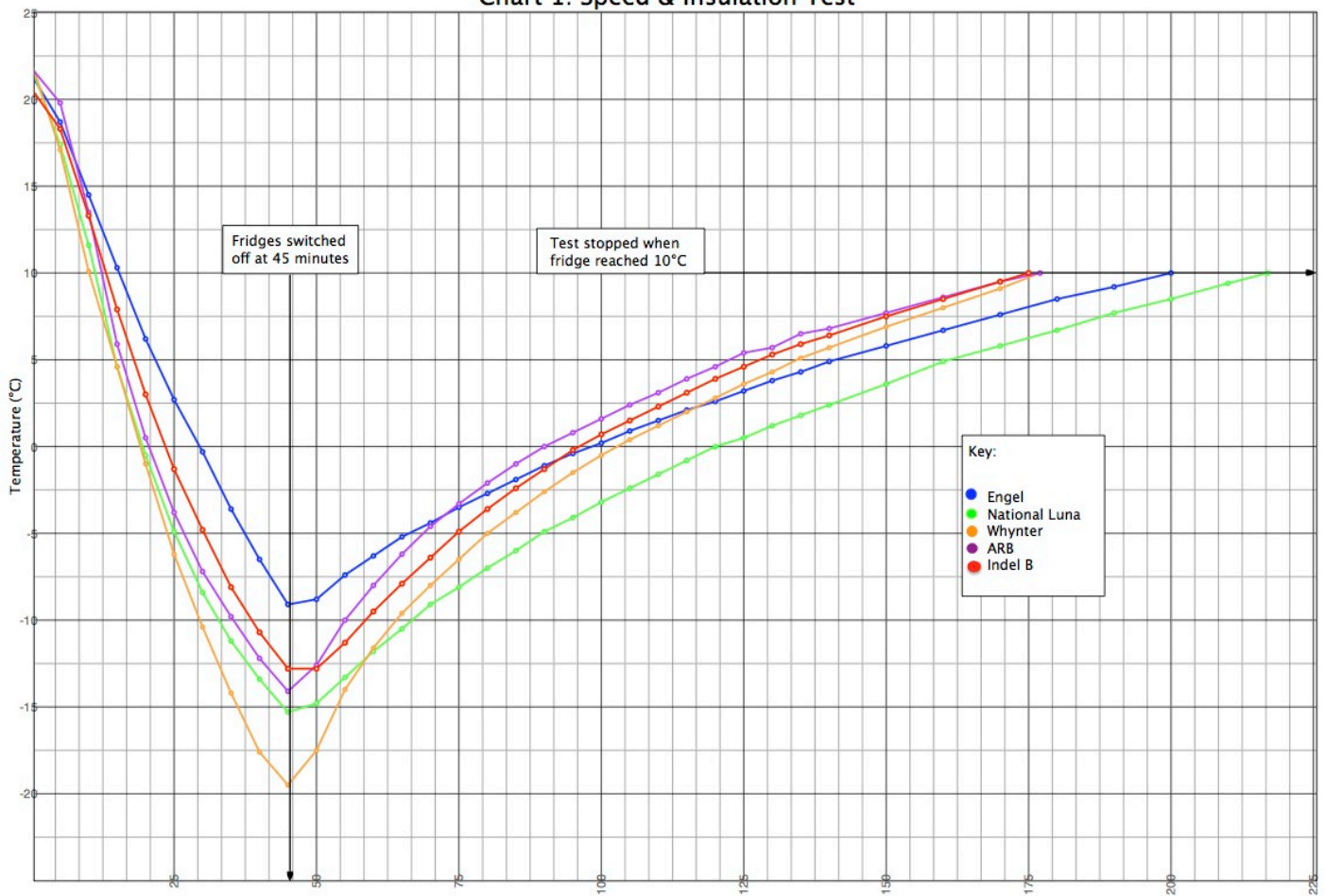
## Speed & Insulation

For the Speed and Insulation test, the Indel B suffered from the same issue as the ARB. Since it has a second, uncooled compartment, warm air is trapped there and warms the fridge cabinet once the fridge is switched off. This is an artifact of the test procedure more than the fridge itself.

In fact, the Indel performance mirrored the ARB very well in this test getting to almost the same temperature after 45 minutes (-14.1°C for the ARB and -12.8°C for the Indel B), and they tracked pretty well warming up, where the ARB initially warmed up faster due to a larger space between the compartments while the Indel warmed slower but reached 10°C (the test stop point) at the same time as the ARB.

The Indel B was put on 'Max' mode for the cool-down portion of this test.

Chart 1: Speed & Insulation Test

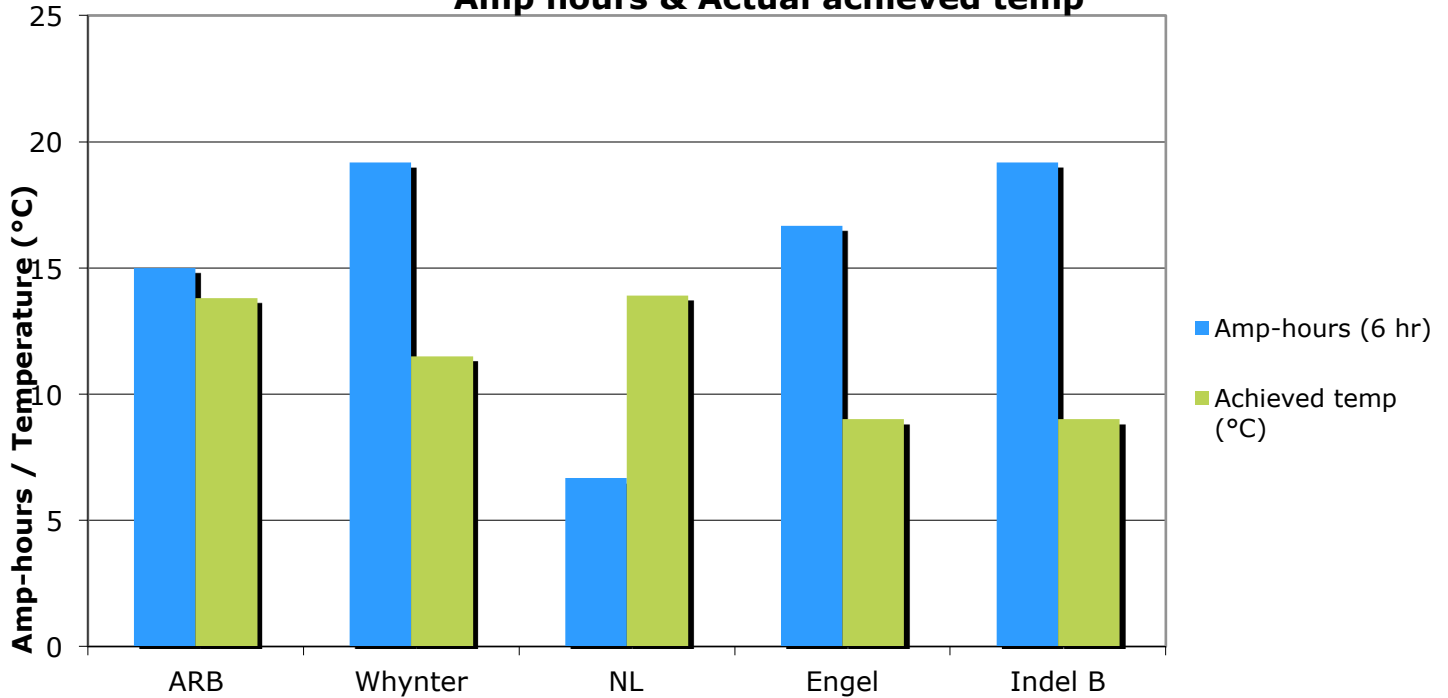


## Workhorse cool-down

For this test, the Indel B used almost as much power as the Whynter, but it achieved a much lower temperature while doing it. It was nowhere close to the efficient use of power that the National Luna displays. The ARB used less power, but also didn't get as cold, while the Engel got to the same temperature as the Indel B but did it with less power (16.6 AH for the Engel while the Indel B used 19.1 AH).

This test was run with the fridge in 'Eco' mode with the target temperature set to 7°C (44.6°F).

**Chart 2: Workhorse cool-down test  
Amp hours & Actual achieved temp**



All of the fridges started the Workhorse cool-down test at different temperatures, so the above chart can be a bit deceptive. Chart 3 shows the same amp-hour draws for the six hour period, but here graphed against the temperature difference (start temp minus final achieved temperature). The Whynter does well here with the pure horsepower of having the compressor run continuously, but the National Luna still wins by sipping so few amps.

**Chart 3: Workhorse cool-down test  
Amp Hours & Temp Difference**

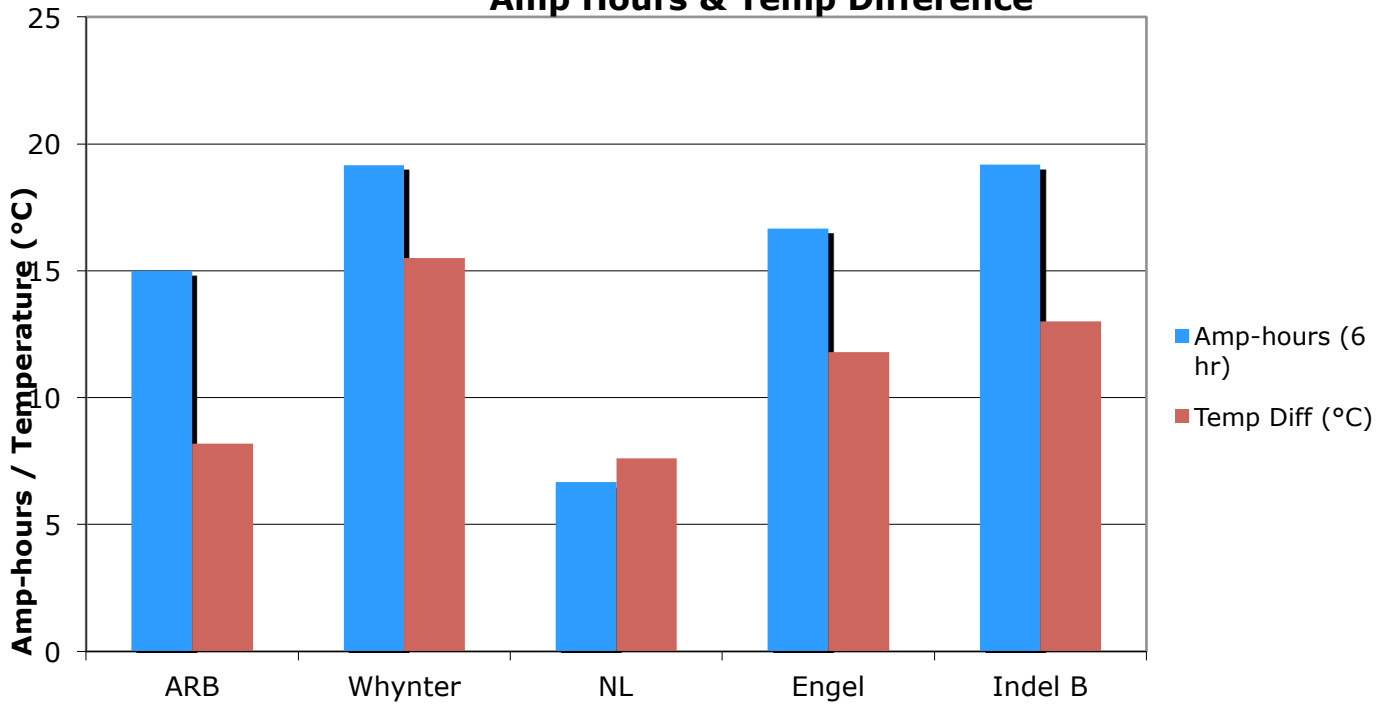
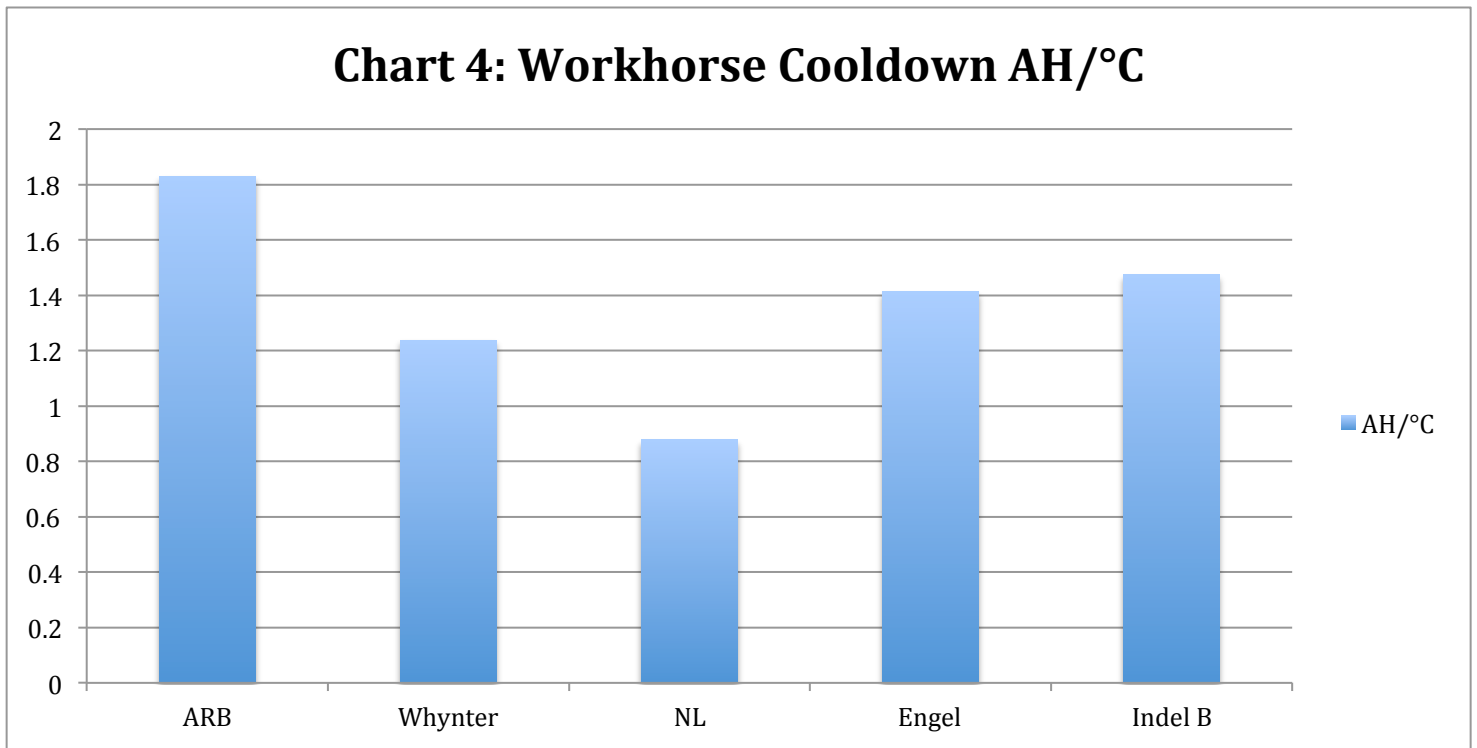


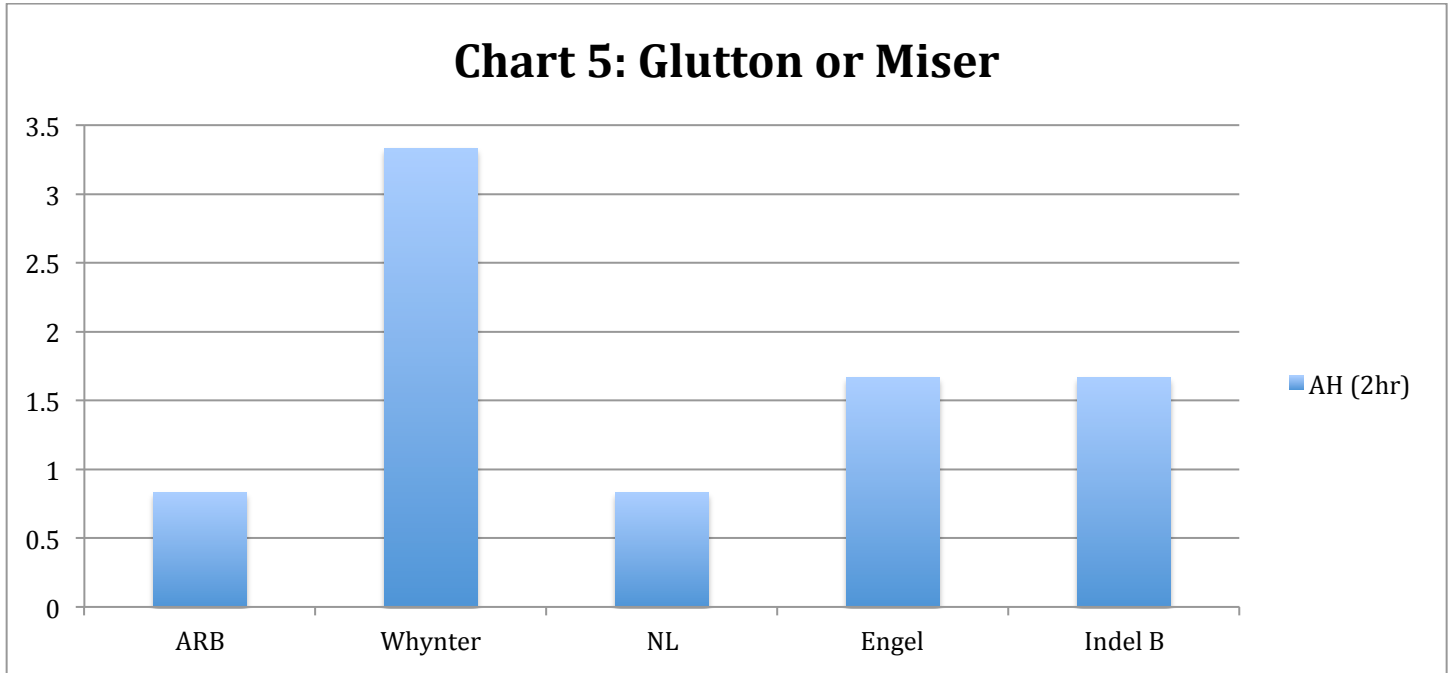
Chart 4 below shows the AH consumed by each fridge per degree they cooled down. Again the National Luna shines here using the least power per degree celcius, while the Whynter looks good only because it cools so fast. The ARB and the Indel B lose out probably because of the dual compartment design, though the Indel B does better than the ARB in this regard.

**Chart 4: Workhorse Cooldown AH/°C**



## Glutton or Miser

For maintaining a set temperature, the Indel B performs very much like an Engel, behind both the ARB and the National Luna, and way ahead of the Whynter. Again, here the Indel B cannot match the superior power use of the National Luna. It fares comparably with the Engel on the high side and the ARB on the low side of power use. Chart 5 shows total amp hour use over two hours maintaining a set temperature. This test should ideally be run over a longer period of time, but was set by the data collected for the *Overland Journal* test. Maintaining temperature was 7°C (44.6°F) while the ambient temperature was 22.8°C (73.4°F) for the Indel B and 33°C (91.4°F) for the others.



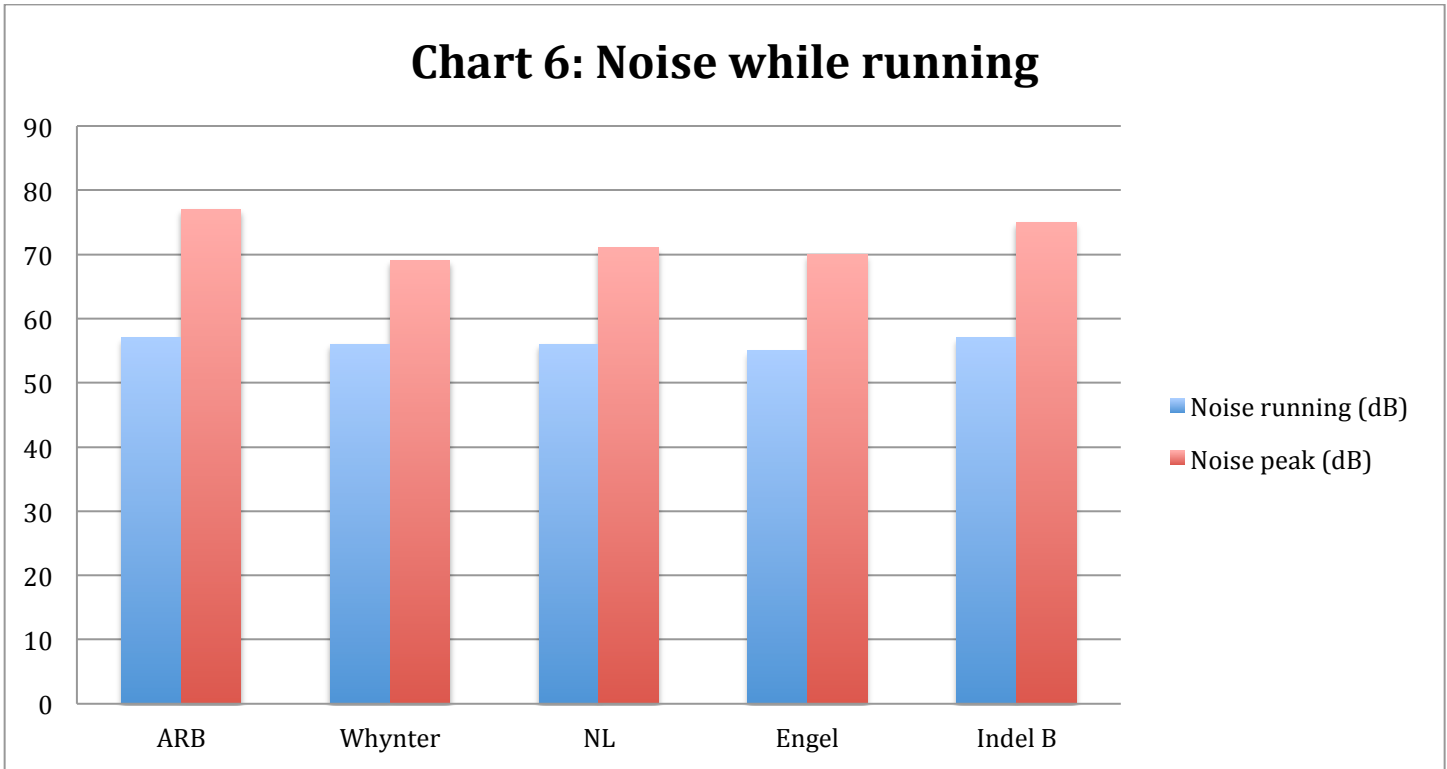
## Noise

As can be seen from Chart 5 there is little to pick between the fridges on noise output while running. Average noise is probably the best measure and that comes out to be:

Average Noise Comparison

Fridge	ARB	Whynter	NL	Engel	Indel B
Average noise (dB)	67	62.5	63.5	62.5	66

### Chart 6: Noise while running



### Volume Efficiency

Volume efficiency is a measured value and ratios the internal open volume of the fridge to the external total volume of the fridge. This gives an indication of how efficiently packaged the fridge is. The value is reported as internal volume as a percentage of external volume, so a higher percentage is better. The Indel B excels in this regard getting ten percent higher space efficiency than its closest rival, the Engel.

Volume Efficiency (Higher is better)

Fridge	ARB	Whynter	NL	Engel	Indel B
Volume % (Internal to External)	36.7	33.2	37.1	37.4	47.2

### Weight Efficiency

Weight efficiency is also measured. This is the ratio of the weight of the fridge to its volume. For loading a truck, considering weight to internal volume is more instructive here because we want to maximize the internal volume and minimize the weight, so internal volume to weight needs to be as large as possible.

Weight Efficiency (Higher is better)

Fridge	ARB	Whynter	NL	Engel	Indel B
Weight % (Internal volume to weight)	116.0	82.9	84.1	83.9	109.8

## Final thoughts and conclusions.

In order to quantify the tests described above, I decided to rank each fridge in each test from one to five with five being the best. That way the scores for each test can be added and the fridges ranked. Understand that this ranking is only based on these tests, and certainly other tests and information (such as cost) could be included that would be instructive.

Scored Comparison (higher is better)

Fridge	ARB	Whynter	NL	Engel	Indel B
Speed & Insulation	2	1	5	4	3
Workhorse cool-down	1	4	5	3	2
Glutton or Miser	4	1	5	2	3
Noise	1	4	3	5	2
Volume efficiency	2	1	3	4	5
Weight efficiency	5	1	3	2	4
Total	15	12	24	20	19

Since the noise test was very close and, in my opinion, not a call out to any specific model, I've also run the totals with the noise test eliminated.

Scored Comparison without Noise Test (higher is better)

Fridge	ARB	Whynter	NL	Engel	Indel B
Total w/o noise	14	8	21	15	17

This comparison puts the Indel B solidly behind the National Luna and on a comparable level with the Engel and the ARB. Everything I've done points to this being a very good fridge; the only factors given no voice are long-term reliability and cost.