



High and dry

Dehumidifier performance claims don't hold water.

As the temperature drops, airborne moisture becomes a bane in many homes. Almost half of tenants battle dampness or mould, compared to a quarter of homeowners, a recent report from Statistics NZ found. If you're renting you're less likely to have a whole-home heating or ventilation system, so it's no wonder Kiwis often turn to dehumidifiers.

Visit an appliance store and you'll find many dehumidifiers claiming to remove 10-20L a day, with some models rated at upwards of 30L. That'd be great if it were realistic – removing 30L of water from the air each day would leave the dankest Dunedin flat bone dry.

The trouble is manufacturers base their water extraction claims on tests conducted at about 30°C and 80 percent relative humidity (RH). Unless you live in the Amazon, those conditions are nothing like the winter climate in your home. We tested dehumidifiers in conditions ranging

from 8°C and 90 percent RH to 16°C and 65 percent RH, which are more typical of a New Zealand winter, and found actual performance is much lower.

On average, the amount of water removed over 24 hours in our test at 16°C was less than a third of the headline figure on the box. Among dehumidifiers rated at 20L a day (the most common size in our round-up), the average amount of water in the tank after we left them running for 24 hours was 6L, with the top-performing 20L model managing 7.5L.

The results were even worse at low temperatures (8°C): on average they only removed 3.3L of water over 24 hours, even with humidity at 90 percent. The upshot is if you're buying a dehumidifier to use in an unoccupied, unheated room during winter, the only way you'll get a good indication of its performance is by using our test results – see the low temperature performance scores in the table for more information. ➤

About our test

- We measured the **water each model collected** at three combinations of temperature and humidity: 16°C and 65 percent relative humidity (RH), 12°C and 75 percent RH, and 8°C and 90 percent RH. Then we scored them on **performance**. These scores are weighted to focus on performance between 8°C and 12°C as dehumidifiers often struggle at this temperature range.
- We also consider **running costs**, and whether they fill to their claimed capacities before switching off. We finish our test with an assessment of each model's **ease of use**, including the usability of controls, ease of cleaning and whether we had any trouble emptying the tank.



GOLDAIR GD330 \$447
GOOD POINTS: Excellent water removal. Excellent low temperature performance. OK energy efficiency. Easy to use. Lightweight. Has timer. Has humidistat. Has carry handle. Good level of room heating for a dehumidifier.
BUT: Expensive to run. Small tank capacity.



DELONGHI DDS30 COMBI \$750
GOOD POINTS: Very good water removal. Good energy efficiency. Easy to use. Has timer. Has heater. Has humidistat. Has carry handles.
BUT: Just OK low temperature performance. Noisy. It's heavy.



SUKI WDH-928DBH-20R \$399
GOOD POINTS: Very good water removal. OK low temperature performance. Good energy efficiency. OK to use. Large tank capacity. Has heater. Has humidistat. Has carry handle.
BUT: It's noisy and heavy.
AVAILABILITY: Bunnings-only. Same model available without built-in heater.



STADLER FORM ALBERT \$699
GOOD POINTS: Good water removal. Very good energy efficiency. OK to use: the controls were easy to operate but we had difficulty emptying the tank. Large tank capacity. Has timer. Has humidistat. Two carry handles on top. Relatively quiet.
BUT: Just OK low temperature performance. It's heavy.

DEHUMIDIFIERS

DETAILED FILTERS	MODELS	\$	%	OUT OF 10				TECH INFO								FEATURES						
		Price	Overall score	Water removal	Energy efficiency	Ease of use	Low temperature performance	Claimed rate @ 30 degrees	Measured rate (8/12/16°C)	Room heating (W)	Running costs \$/year	Weight (kg)	Noise (dBA)	Measured tank capacity (L)	Claimed tank capacity (L)	Fan speeds	Timer	Heater	Adjustable Humidistat	Wheels/casters	Carry handle(s)	Continuous drainage
✓ RECOMMENDED																						
⊕ WORTH CONSIDERING																						
✓	Goldair GD330	447	85	9.9	5.5	7.2	9.2	8 ^B	6.9	825	186	6.0	53	1.8	2.0	3	●		●		1	●
✓	DeLonghi DDS30 Combi	750	78	8.0	7.8	7.0	5.3	30	6.1	400	72	16.2	56	3.7	4.5	3	●	●	●	●	2	●
✓	Suki WDH-928DBH-20R	399	77	8.3	7.6	6.2	6.8	20	6.0	430	84	14.6	58	4.3	5.0	2		●	●	●	1	●
✓	Stadler Form Albert	699	72	7.0	8.1	6.8	4.7	20 ^B	5.2	329	55	12.6	47	4.1	4.6	3	●		●	●	2	●
⊕	Panasonic P-YCL17N	629	70	6.4	8.0	7.8	3.0	17	4.9	356	54	13.8	51	4.4	4.8	2	●		●	●	1	●
⊕	Dimplex GDDEK16	399	69	6.3	8.0	7.7	4.5	16 ^B	4.6	317	52	10.4	55	5.0	5.0	2	●		●	●	1	●
⊕	DeLonghi DDS25 ^A	599	67	6.3	7.6	6.8	3.6	25	4.9	341	62	15.2	55	4.0	ns	3	●		●	●	r	●
⊕	Moretti MYDE220D	279	66	6.1	7.2	7.8	3.1	20 ^B	4.7	399	72	13.4	54	4.3	5.0	2	●		●	●	1	●
	Mitsubishi MJ-E16VX-A1-W	799	61	5.3	7.1	7.3	5.2	16	3.6	320	65	11.6	50	3.8	4.0	Auto	●		●		1	●
	Evantair TWDH20 ^A	449	60	5.2	7.0	7.5	3.6	20 ^B	3.8	335	65	14.0	55	5.0	5.0	2	●	● ^C	●	●	●	●
	Goldair GD285 ^A	550	59	5.3	7.3	6.5	3.1	20 ^B	4.0	327	60	13.4	52	2.5	4.0	1					●	●
	DeLonghi DES 16EW	499	56	4.5	6.9	7.5	4.0	16 ^B	3.2	285	59	9.6	55	3.1	3.0	2			●	●	1	●
	Suki WDH-716HA-16R ^A	199	54	4.6	6.2	6.8	2.6	16	3.5	370	74	12.3	53	2.7	ns	1			●	●	●	●
	Goldair GD190 ^A	400	50	3.6	6.6	7.5	3.1	10 ^B	2.6	242	52	9.7	56	2.0	2.0	1	●		●		●	●
	Celsius CELDH150 ^A	300	49	3.6	7.1	6.3	2.2	12 ^B	2.7	240	44	9.5	47	1.9	1.9	2	●		●		●	●
	Nouveau ND003A16L ^A	229	47	3.3	5.9	7.8	2.2	16 ^B	2.4	277	58	11.0	56	4.8	5.0	2	●		●	●	●	●

GUIDE TO THE TABLE OUR TEST was conducted in an independent New Zealand laboratory. ^ATested for this update. **PRICE** is from a May 2016 survey. **SCORES OUT OF 10** **Water removal** (60% of overall score) is across a range of temperatures and humidity levels. **Energy efficiency** (20%) is based on how much energy each model uses per unit of water removed. **Ease of use** (20%) assesses tank emptying, layout and readability of controls, clarity of instructions, ease of cleaning, and how easy the dehumidifier is to move. **Low temperature performance** is measured at 8°C and 90% relative humidity, incorporated into water removal score. **TECH INFO** **Claimed rate @ 30 degrees** ^BManufacturer claims "up to" this figure. **Measured rate** is an average of our tests at 16°C and 65 percent relative humidity (RH), 12°C and 75 percent RH, and 8°C and 90 percent RH. **Room heating** is the heating delivered to the room measured in our test at 12°C with 75% relative humidity, with the heater running if applicable. **Running costs** are shown in \$ and assume three hours' use per day over one year using an electricity rate of 26¢/kWh. **Noise** is measured at a distance of 1m in front of the dehumidifier at a height of 0.9m with the fan running if applicable. **Measured tank capacity** is the amount of water in the tank when the dehumidifier indicated it needed emptying. **FEATURES** **Heater** shows whether the model has a separate room heating function. ^CHeats when in "laundry mode". We did not test heater performance. **Adjustable Humidistat** allows you to set a humidity level for the room (most humidistats offer several pre-set humidity levels to choose from). **Continuous drainage** means a hose can be attached to the water outlet and plumbed into a sink or drain, removing the need to empty the tank.



The best model in our round-up is the Goldair GD330. We tested it back in 2012 and it has remained the top performer four years running.

If you're happy accepting lower performance (especially at cooler temperatures) in exchange for reduced running costs, the best compressor models are the **DeLonghi DDS30 Combi** (\$750), the **Suki WDH-928DBH-20R** (\$399) and the **Stadler Form Albert** (\$699). Of these, the Suki returned the best low temperature performance, but at 58dBA it's the noisiest dehumidifier we've tested: for comparison the noisiest dishwasher we've seen was only 54dBA.

What they said

We sent manufacturers and distributors the performance data from our test, and asked them to comment on the disparity between our results and their claims.

Most said they based their results on tests at about 30°C and 80 percent RH because this was the "industry standard" used worldwide for rating dehumidifiers, and adopted by most manufacturers.

However, some acknowledged these conditions did not reflect the reality in Kiwi homes during winter and took a more proactive stance. Yale Prima, which distribute Moretti dehumidifiers, said it was "developing a performance table listing various weather combinations" and was looking at incorporating this information on its packaging. We'd like to see all manufacturers follow this example.

CDB Media, which distributes Goldair, Evantair, Celsius, Noveau and Stadler Form, includes this in its user guides: "where you do not have [high] humidity and high temperatures the extraction levels will be lower." It also addresses this issue in some of its catalogues, though in our view this doesn't compensate for the fact that claims on the box are potentially misleading.

Black Diamond Technologies (BDT), the distributor for Mitsubishi Electric, acknowledged in its user manuals and website that its dehumidifiers "collect less water in winter" and provided a

chart showing water removal at lower temperatures. BDT managing director Daryl Rochester disagreed test results at lower temperatures would be helpful. "BDT rejects the assertion by Consumer that temperatures of 8, 12 or 16°C are relevant to typical New Zealand homes," he said. He claimed BDT's data indicated the average temperature in New Zealand homes in mid-winter was "around 19°C".

This view isn't shared by Doctor Lucy Telfar Barnard, University of Otago Housing and Health Research Programme senior research fellow. She said the average winter temperature indoors was nowhere near 19°C, especially in the cold, damp rentals that relied on dehumidifiers.

She cited the Building Research Association of New Zealand's Home Energy End Use report, based on a study of 400 houses between 1997 and 2005, which found the average winter temperature over 24 hours was only 15.5°C in living areas and 13.9°C in bedrooms.

Dr Telfar Barnard said although there had been progress in improving the levels of insulation and heating in homes, there was nothing to indicate indoor temperatures would have jumped dramatically in the past 11 years. The other issue is dehumidifiers are commonly used in unoccupied, unheated rooms, which are likely to fall below 10°C during winter.

We say

■ Consumers deserve a more realistic indication of dehumidifier performance. Manufacturers' claims need to be based on test conditions relevant to New Zealand's climate. We think the industry should adopt a testing standard that shows performance at a range of temperatures and humidity levels.

■ In our view, it's misleading to publish data based on conditions that are nothing like the average New Zealand home. We've complained to the Commerce Commission of a potential breach of the Fair Trading Act by the dehumidifier industry. [🔗](#)

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Troubled waters

This year, we tested seven dehumidifiers and combined their results with nine models from previous tests. The results weren't good for the class of 2016: only one is worth considering – the **DeLonghi DDS25** (\$599) – and none came close to earning our recommended tick.

The best model in our round-up is the **Goldair GD330** (\$447). We tested it back in 2012 and it has remained the top performer four years running. It removed 6.9L over 24 hours compared to an average of 4.2L for other models and, unlike other models, its performance doesn't suffer at lower temperatures: at 8°C and 90 percent RH it removed 7.4L, compared to an average of 3L for the rest. However, its tank is relatively small at 1.8L, so you're going to be emptying it more often (note: you can get around this by attaching a hose to its water outlet for continuous drainage).

The reason for the GD330's stellar performance relative to the rest is its "desiccant" technology. Desiccant dehumidifiers blow air through a rotating disk filled with moisture-absorbing material, and perform better in lower temperatures than the more common compressor models, which function in a similar way to a stripped-back refrigerator or heat pump. The downside is desiccant models cost three times as much to run as their compressor counterparts, though they generate twice as much heat as other models.

