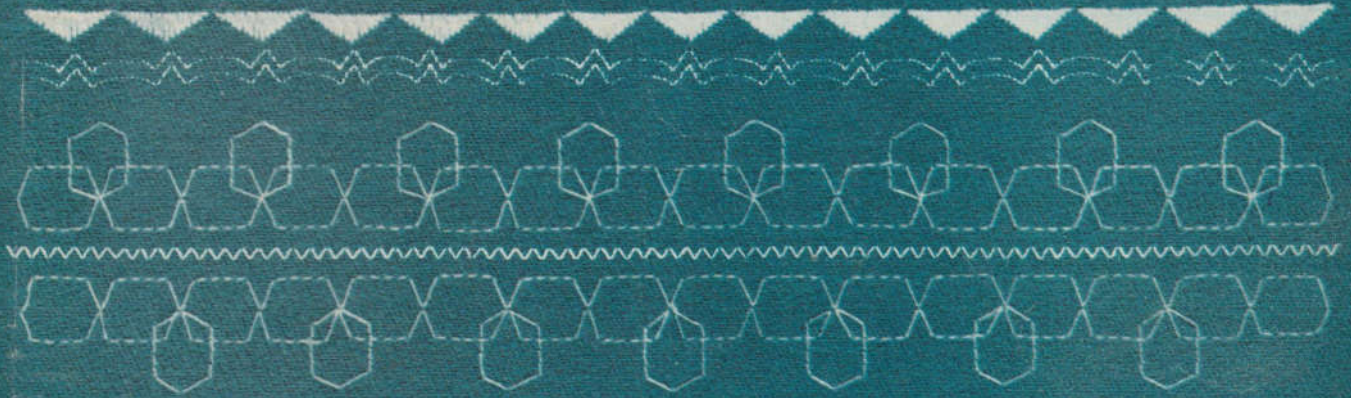


Which?

January 1970



Sewing Machines



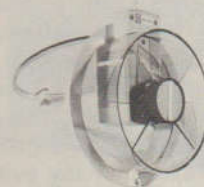
Extractor fans



Many British houses are so draughty that the problem is usually how to cut down ventilation rather than provide it. But there are particular places where you often do need extra ventilation – most usually in the kitchen and bathroom – to stop condensation from steam and from the moisture produced by burning gas. A good extractor fan will help with this. And, when we tested cooker hoods in 1967, we found that a powerful extractor fan was better than any of them at getting rid of cooking smells.

We have tested all the fans that we could find with blades up to 9 in. in diameter – as large as you might want for normal domestic use – and which can be mounted in a window pane. There were 23 models from 13 manufacturers, costing from about £4 to £31. They are listed in the Table on page 15.

Philips HR 3404



Installation

There are two parts to installing a fan: putting it in place, and wiring it up to the electricity.

To put it in place, you have a circular hole of the correct size cut in one of your window panes; or have the pane replaced by one in which a hole has been cut. To have a glazier come to cut a hole in an existing pane might cost anything up to £3; changing the pane a little more. If you can take the pane yourself to the glazier, he shouldn't charge more than about 10s for simply cutting a hole.

For a 7½-in. diameter fan or bigger you will probably need 32 oz glass ($\frac{5}{8}$ in. thick) – slightly thicker than some window glass.

It is quite simple to put the fan in position, but most need two people – one inside and one outside. There were no particular problems with any of the fans. The Lamel came with no instructions to say how large the hole in the glass should be.

The Ram-Ary fan did not need a circular hole cut – you cut out one corner of a pane, using the glass cutter and paper pattern provided.

Wiring up. Only the Airfix, Fanflow, Fobelflow, Utilair and Xpelair FXC6 came with a flex attached. So, unless you are fairly handy *and* have a convenient socket nearby, you'll probably need a qualified electrician.

You can get fans to fit through an outside wall rather than a window. They have the advantage that you may be able to put them where they would be most efficient, but they are more difficult to install. Some of the fans we tested can be fitted through a wall as well as in a window, and you can get some in alternative versions for wall fitting – see footnotes to the Table.

Positioning

The best place to put a fan in a kitchen is as high as possible, near the cooker, and with the cooker between the fan and the door into the rest of the house.

Controlaire
Indola IDS-20



Air will be drawn into the house to replace the air the fan is sucking out of the window. So a fan will ventilate other parts of the house too.

Shutters and switches

Various types of **shutters** were used to prevent air blowing into your room through the fan when it was turned off.

Most were either simple flaps or a number of louvres controlled by a chain or cord. The Utilair and Bahco had iris-type shutters (like a camera aperture) controlled in the same way. You can order the Vent-Axia models either with cord-operated iris-type shutters, or, in the versions tested, with a number of flaps that open automatically with the air pressure from the fan, when you want to extract. With the Xpelair GX9, the shutter opened electrically when you switched the fan on.

The Table shows which fans came with **switches** and what type they were. With a shutter switch, the fan automatically comes on when you open the shutter and is switched off when you close it. The shutter switch on the Lamel fan did not always work.

If you bought one of the fans without a switch or the Vent-Axias or Xpelair GX9 without a control box, you would need a switch at the wall socket.

Speed and direction controls

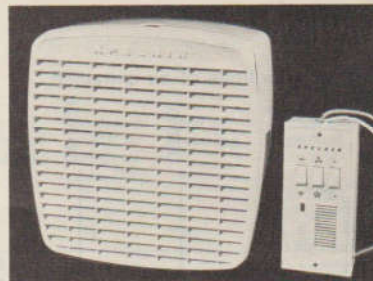
It is an advantage to have more than one speed. If you don't need the fan on full, it will be quieter at lower speeds and you'll lose less heat in winter.

If in warm weather you want to bring fresh air into the room, a reversible fan may be useful.

The Multivane Super had a built-in switch to give two forward speeds and two reverse. You could reverse the Philips by turning a control in the hub of the fan that altered the angle of the blades, and the Controlaire models could be tilted up above their housings to pull some air in.

The price we show for the Xpelair GX9 includes £5 15s for a control box giving two forward and two

Xpelair GX9



reverse speeds. Without the control box it would give the high extract speed only, and no reverse.

The prices shown for the three Vent-Axia models include automatic shutters and control boxes giving three extract and three reverse speeds. Without a control box (£4 15s for the 6-in. and 7½-in. fans or £5 15s for the 9-in.) you can get the middle (normal) extract speed only, and no reverse. Non-reversing three-speed control boxes, with a different shutter, are slightly cheaper.

The Utilair had a built-in switch giving two extract speeds, but you can buy a four-speed control box (£4 7s 6d) that gives a total of eight extract speeds. A variable speed control (£2 19s 5d) is also available to reduce the speed of the Ventwin Mk 8. You can get a 'De Luxe' Thermor Popular, with two extract and two reverse speeds, for an extra £5 10s 7d.

Performance

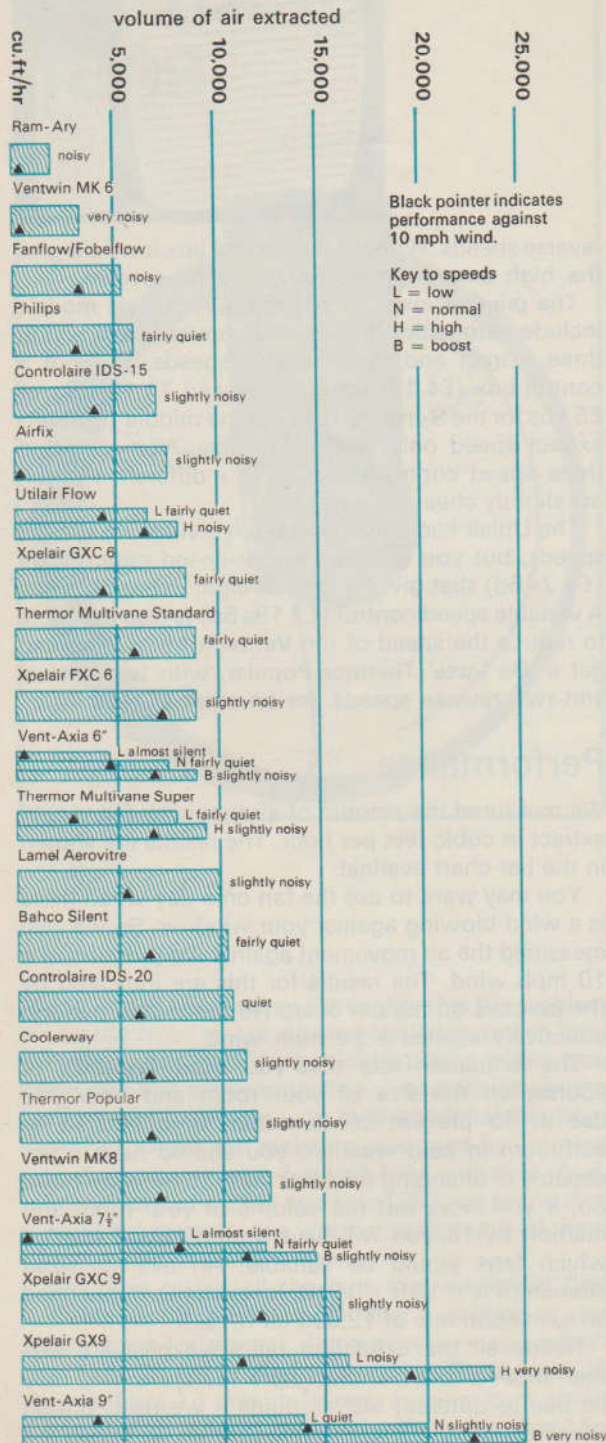
We measured the amount of air that each fan would extract in cubic feet per hour. The results are shown in the bar chart overleaf.

You may want to use the fan on a day when there is a wind blowing against your window. So we also measured the air movement against the pressure of a 10 mph wind. The results for this are indicated by the pointers on the bar chart. No fan would perform effectively against a 20 mph wind.

The extraction rate that you need depends, of course, on the size of your room and how you use it. To prevent condensation in a kitchen or bathroom in cold weather, you should have a fan capable of changing the air at least 15 times an hour. So, if you work out the volume of your room and multiply by 15, you will have a pretty good idea of which fans would be suitable. An average-sized kitchen (8 ft × 10 ft × 10 ft), for example, might need an extraction rate of 12,000 cu ft/hr.

Nearly all the extraction rates we give are less than those in the manufacturers' literature. This may be due to different test methods – we used British Standard method 8 – or to the fact that we tested the

Fan performance



fans with their shutters fitted (and open).

The reversible fans usually drew in about the same amount of air as they sucked out, except for the Xpelair GX9 and the Vent-Axia fans, where input rates were about three-quarters of extraction rates.

Noise

We measured the noise made by each fan in an echo-free sound-proof room. This gives comparative ratings of noise – they are shown on the bar chart. You may get additional noise if your fan is mounted in a loosely fitting window frame. Some people are more sensitive to noise than others, and your reaction will also be affected by the general noise level of your surroundings – what is hardly noticed in a city house may sound very annoying in the country.

Safety

Extractor fans are usually mounted high up, so you are not likely to put your hand into them. If you did, the Coolerway and Ventwin Mk 8, which had unprotected metal blades, might hurt you.








The Ventwin Mk 6 had a sharp rim on which you might cut yourself when cleaning the fan. The manufacturers tell us that current models have a plastic cover over this rim.

We tested all the fans for electrical safety. The Airfix, Lamel, both Ventwins and Ram-Ary had no satisfactory cord anchorages. The Lamel, Ventwins and Ram-Ary also had other electrical faults, as did the Fanflow and Fobelflow. All these models were electrically unsatisfactory.

On the Xpelair GXC9 you could touch live parts by removing a cover without using a tool. This was an assembly fault which the manufacturers say has been corrected. The optional control boxes of the Ventwin Mk 8 and Utilair models came without instructions. They would have to be wired up by an electrician because, if wrongly connected, the Ventwin Mk 8 could be potentially dangerous and the Utilair electrically unsatisfactory.

It is possible that the blade of a fan might become jammed. The British Standard says that, if this happens, it must not overheat when the current is turned on. When we jammed the blades of the Airfix, Controlaire IDS-15, Fanflow, Fobelflow and Ram-Ary, they got so hot that the fans would not work again. The manufacturers of Fanflow and Fobelflow say this is being corrected. The Thermor Popular, Multivane Standard, and Bahco also over-heated, but they would still work. The Xpelair FXC6 and

Extractor fans

	country of origin	price			no. of extract speeds	reversible	type of switch	approx. diameter of blades in.	minimum width of window pane [12] in.	ease of cleaning	guarantee period months
		£	s	d							
AIRFIX (Woolworths')	UK	3	18	6	1	no	none	6½	8½	easy	6
BAHCO SILENT[10]	Sweden	24	0	3[1]	1	no	shutter	7½	9½	easy	12
CONTROLAIRE INDOLA IDS-15	Holland	8	16	6	1	[2]	none	6	8½	easy	24
CONTROLAIRE INDOLA IDS-20	Holland	13	18	4	1	[2]	none	7½	10½	very easy	24
COOLERWAY (Metway)[9]	France	8	16	5	1	no	none	7½	10½	fairly easy	12
FANFLOW 	UK	8	18	5	1	no	shutter	6	7½	easy	24
FOBELFLOW	UK	8	18	5	1	no	shutter	6	7½	easy	24
LAMEL AEROVITRE	France	11	0	0	1	no	shutter	7½	9½	easy	12
PHILIPS HR 3404[7]	Holland	7	7	0	1	yes	shutter	6	8½	easy	12
RAM-ARY	Italy	4	9	0	1	no	none	6	8½	difficult	12
THERMOR POPULAR[9]	France	9	3	5	1[8]	no	none	7½	10	easy	12
THERMOR MULTIVANE STANDARD[10]	France	14	18	5	1	no	shutter	7½	11	rather difficult	12
THERMOR MULTIVANE SUPER REVERSIBLE[10]	France	21	9	4	2	yes	cord control	7½	11	rather difficult	12
UTILAIR FLOW KV600[10]	Denmark	14	10	10	2[3]	no	shutter	6	9½	easy	12
VENT-AXIA 6-in.[7] [10] 	UK	24	7	0[4]	3	yes	control box	6	8½	easy	12
VENT-AXIA 7½-in.[7] [10] 	UK	28	19	5[4]	3	yes	control box	7½	10	easy	12
VENT-AXIA 9-in.[10] 	UK	30	15	0[4]	3	yes	control box	9	11½	easy	12
VENTWIN MK 6	UK	6	19	11	1	no	none	5½	8½	difficult	12 [11]
VENTWIN MK 8	UK	9	3	3	1[5]	no	none	7½	10	difficult	12 [11]
XPELAIR FXC 6[7]	UK	9	9	0	1	no	shutter	6	8½	easy	24
XPELAIR GXC6[7] [9] [10] 	UK	12	12	0	1	no	shutter	6½	8½	rather difficult	24
XPELAIR GXC9[9] 	UK	18	18	0	1	no	shutter	9	11½	rather difficult	24
XPELAIR GX9 [9] [10] 	UK	25	5	0[6]	2	yes	control box	9	11½	rather difficult	24

[1] Including window fitting kit (£3 3s 5d) and protection grille (£1)

[2] Can be lifted to pull in air

[3] Control box available (£4 7s 6d) to give eight speeds

[4] In ivory including reversing three-speed control box (£4 15s 0d for 6-in. and 7½-in., £5 15s 0d for 9-in.)

[5] Variable speed control available (£2 19s 5d)

[6] Including two-speed reversing control box (£5 15s 0d)

[7] On BEAB Approved List


[8] De Luxe model with two speeds and reverse available (£14 14s 0d)

[9] Can also be mounted through a wall

[10] Alternative version available for mounting through a wall

[11] Excludes labour

[12] Heavier glass (32 oz) may be needed if the pane is close to this minimum

 In Council of Industrial Design's Index

GXC6 had a thermal cut-out which stopped them working – they would then have to be repaired by the makers.

You should not install an extractor fan too close to the top of your cooker: if a pan of fat catches fire, the fan might suck the flames into itself.

There is another safety point to bear in mind. A boiler, fire or hot water heater that uses a flue draws in air from the room and gets rid of the dangerous fumes it produces up the chimney. If you don't provide plenty of ventilation, a powerful extractor fan might reduce the flow and perhaps even bring fumes into your room. None of this applies if you have a *balanced flue*, which means that the burners are sealed off from your room.

Cleaning

An extractor fan used in a kitchen will quite quickly get coated with grease, so you will want to clean it every so often. We assessed the fans for ease of cleaning – some could be taken apart for this – and ratings are shown in the Table.

Running costs

The most powerful fan we tested used less electricity than a 100-watt light bulb – it could run all day for 2d – so running costs are quite small. However, in cold weather, the warm air you draw out will have to be replaced: you may increase your heating bill by a few shillings a week.

Durability

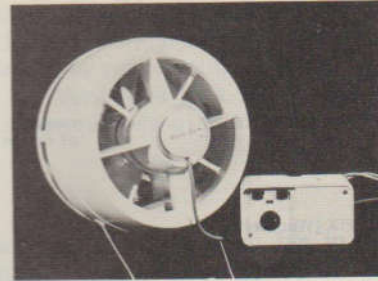
The motors in these fans are designed to run continuously, so you should not get a breakdown in normal use for a number of years. We did not attempt endurance tests. However two samples of the Fanflow/Fobelflow fan broke down in the course of our performance tests. The guarantee periods are shown in the Table.

Occasional oiling is recommended in the instructions of some models.

Availability

A survey showed that Airfix, Philips, Xpelair and Vent-Axia fans were widely available in the shops, but the others may be hard to find. You could not usually get a discount.

Vent-Axia 7½-in.



Value for money

If you want to reduce condensation in your kitchen or bathroom, or cut down cooking smells, you will probably need a fan with an extraction rate of between 10,000 and 15,000 cu ft/hr.

A glance at the bar chart on p 14 shows that there were seven models in this range. Of these the Bahco (£24 0s 3d), Controlaire IDS-20 (£13 18s 4d), Coolerway (£8 16s 5d), Thermor Popular (£9 3s 5d) and Vent-Axia 7½-in (£28 19s 5d) were electrically satisfactory. The Coolerway and Thermor were the cheapest; the Controlaire was considerably quieter and easier to clean, but cost more. These three were good value.

The Bahco and Vent-Axia were considerably more expensive. The Bahco had no special virtues. The Vent-Axia had the advantage of a higher extraction rate, with the option of virtual silence at its lowest speed. If you can afford it, it would be good value for money.

If you want a cheaper fan for a small kitchen or lavatory, the Philips (£7 7s) was cheap and fairly quiet. The Xpelair FXC 6 (£9 9s) moved more air, but was noisier and more expensive.

For a very large room you could either have two smaller fans or one of the powerful 9-in. models. Of these, the Vent-Axia 9-in. (£30 15s with control box) was the most powerful, and, at its slow speed, was quiet.

So we choose as:

GOOD VALUE FOR MONEY (depending on the size of your room)

Philips HR 3404 £7 7s

Xpelair FXC 6 £9 9s

Controlaire Indola IDS-20 £13 18s 4d

Coolerway £8 16s 5d

Thermor Popular £9 5s 3d

Vent-Axia 7½-in. £28 19s 5d [1]

Vent-Axia 9-in. £30 15s [1]

[1] In ivory, including automatic shutter and three-speed reversible control box. About £2 cheaper in black.